MARCH 1982 NUMBER 451 -- Part I

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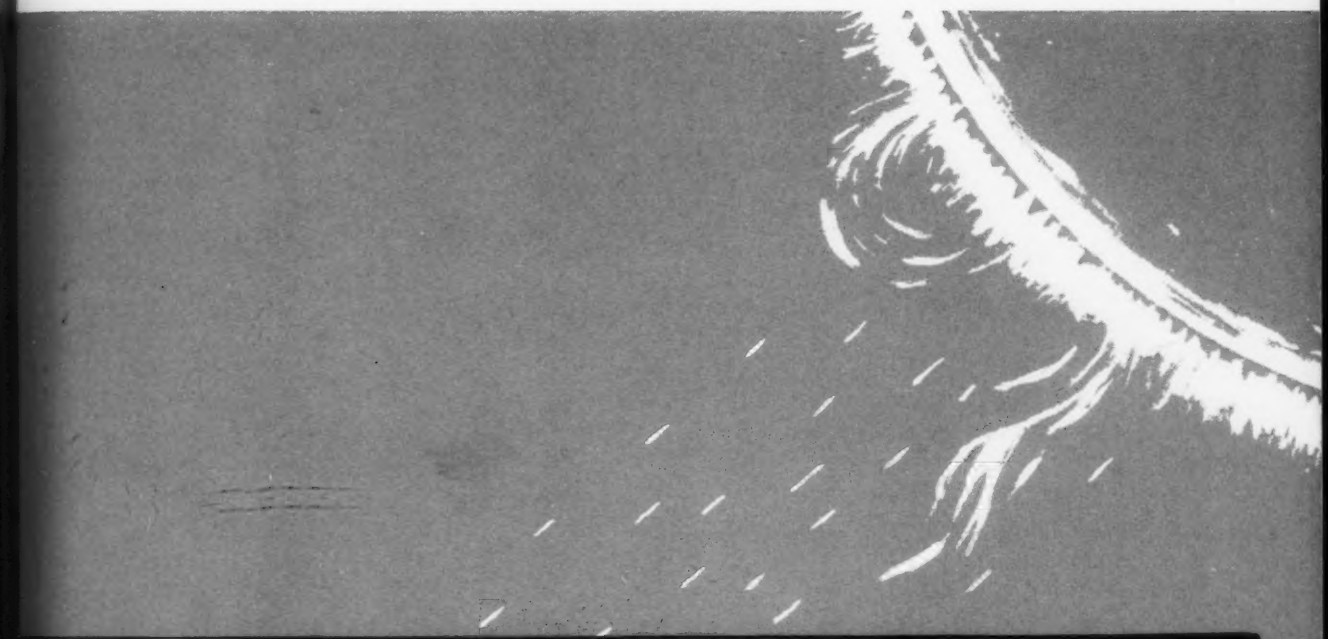
Solar-Geophysical Data prompt reports

Data for February 1982, January 1982 & Late Data
Explanation of Data Reports Issued as Number 450 (Supplement) February 1982



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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

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Solar - Geophysical Data

NO. 451 MARCH 1982

Part I (Prompt Reports)

DATA FOR
FEBRUARY 1982
JANUARY 1982

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR-GEOPHYSICAL DATA

No. 451

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

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		1981 Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1982 Jan	Feb
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A.2c	American Relative Sunspot Numbers Ra	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11
A.3a	Mt. Wilson Magnetograms	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	440A108	441A120	442A112	443A106	444A112	445A116	447A163	447A114	448A114	449A110	450A104	451A120	
A.3c	Kitt Peak Magnetograms	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	
A.3d	Mean Solar Magnetic Field (Stanford)	439A 38	440A 46	441A 50	442A 44	443A 38	444A 46	445A 47	446A 34	447A 46	448A 44	449A 38	450A 34	451A 50
A.3e	Stanford Magnetograms	439A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	
A.4	H-alpha Filtergrams	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	
A.5	Calcium Plage Drawings - Mt. Wilson or Big Bear	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	446A 40	447A 54	448A 52	449A 50	450A 42	451A 58	
A.5a	Calcium Plage (Mt. Wilson or Big Bear) and Sunspot Regions	440A108	441A120	442A112	443A106	444A112	445A116	447A163	447A114	448A114	449A110	450A104	451A120	
A.5b	Mt. Wilson or Big Bear Daily Calcium Plage Indices	440A121	441A135	442A127	443A119	444A122	445A129	447A175	447A128	449A172	449A127	450A118	451A 35	
A.6	H-alpha Synoptic Charts	440A 48	441A 54	442A 48	443A 42	444A 50	445A 52	446A 38	447A 50	448A 48	449A 42	450A 38	451A 54	
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A.6c	Stanford Solar Magnetic Field Synoptic Charts	440A 49	441A 55	442A 49	443A 43	444A 51	445A 53	446A 39	447A 51	448A 50	449A 44	450A 39	451A 55	
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A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	446A 11	447A 11	448A 11	449A 11	450A 11	451A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11	----	447A 11	448A 11	449A 11	450A 11	451A 11
A.10a	169 MHz - Interferometric Observations (Nancay)	439A 24	440A 29	442A160	442A 27	443A 23	444A 27	445A 27	446A 20	447A 28	448A 25	449A 25	450A 23	
A.10c	21 cm East-West Solar Scans (Fleurs)	439A 27	440A 32	441A 33	442A 30	443A 26	444A 30	445A 30	446A 23	447A 32	448A 28	449A 28	450A 26	451A 33
A.10d	43 cm East-West Solar Scans (Fleurs)	439A 28	440A 33	441A 34	442A 31	443A 27	444A 31	445A 31	446A 24	447A 33	448A 29	449A 29	450A 27	451A 34
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	439A 26	440A 31	441A 32	442A 29	443A 25	444A 29	445A 29	446A 22	447A 31	448A 27	449A 27	450A 25	451A 32
A.10f	3 cm East-West Solar Scans (Toyokawa)	439A 25	440A 30	441A 31	442A 28	443A 24	444A 28	445A 30	---	447A 29	448A 26	449A 26	450A 24	451A 31
A.10g	8 cm East-West Solar Scans (Toyokawa)								446A 21	447A 30	---	---	---	---
A.11g	Solar X-ray (SMS/GOES) (graphs)	444B 43	445B 51	446B 69	447B 34	448B 31	449B 58	450B 54	451B 40					
A.12e	Energetic Solar Particles (IMP H & J)	June 1980 ---449B 98/May 1980 --- 450B 68												
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A.13e	Solar Plasma (IMP H & J)	449B105	449B106	449B107	449B108									
A.13f	Solar Wind (Pioneer 12 (Venus))	442A170	442A170	442A171	442A 45	443A 39	444A 47	445A 45	446A 31	447A 43	448A 41	449A 35	450A 31	451A 51
A.17	Interplanetary Magnetic Field (Pioneer 12)	440A153	---	---	---	444A126	445A135	446A107	447A129	450A148	---	---		
A.17c	Inferred IP Magnetic Field	439A 36	440A 44	441A 48	442A 42	443A 36	444A 44	445A 46	446A 32	447A 44	448A 42	449A 36	450A 32	451A 48
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B.53	Quality Figures Based on Frequency Ranges	440A156	443A166	442A158	443A149	444A150	445A165	446A139	447A158	448A156	449A166	450A143	451A161	
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C.1ba	Optical Observations Flares (Standardized Data) 1979-80	447B 44	449B 68	451B 48										
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C.1d	Flare Patrol Observations 1979-80	448B 42	449B 95	451B 92										
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C.1f	Flare Indices (by Region) 1979-80													
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	Solar Radio Waves - Fixed Frequencies - Selected	439A 29	440A 34	441A 35	442A 32	443A 28	444A 32	445A 32	446A 25	447A 34	448A 30	449A 30	450A 28	451A 35
C.4a	Solar Radio Spectral Obs. (Fort Davis)	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	
C.4d	Solar Radio Spectral Obs. (Culgoora)	440A126	441A136	443A154	443A123	444A127	445A136	446A108	447A130	448A173	449A132	450A122	451A140	
C.4e	Solar Radio Spectral Obs. (Weissenau)	441A136	442A134	443A123	445A174	445A136	445A136	446A108	447A130	448A173	449A132	450A122	451A140	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122		
C.4i	Solar Radio Spectral Obs. (Bleien)	440A126	441A136	442A134	443A123	44A127	445A136	---	---	---	---	---	451A140	
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	440A126	441A136	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	
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C.5e	Solar X-ray (SMS/GOES) (graphs)	444B 43	445B 51	446B 69	447B 34	448B 31	449A 58	450B 54	451B 40					
C.6	Sudden Ionospheric Disturbances	440A122	442A172	442A128	443A120	444A123	445A130	446A102	448159	449A168	449A128	450A119	451A136	
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D.1a	Geomagnetic Indices Kp, Km, Ks, Km, Ap, aa, Cp	440A149	441A162	443A164	443A144	444A144	445A160	446A135	447A152	448A150	449A159	450A138	451A151	
D.1ba	27-day Chart of Kp Indices	440A151	441A164	442A153	443A146	444A146	445A162	446A137	447A154	448A152	449A161	450A140	451A153	
D.1c	27-day Chart of C9	451A158	451A158	451A158	451A158	451A158	451A158	451A158	451A158	451A158	451A158	451A158		
D.1ca	as graph 1868 - present													
D.1d	Principal Magnetic Storms	440A152	441A166	442A155	443A147	444A147	445A163	447A180	448A164	449A186	449A162	450A141	451A159	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	441A170	442A180	443A165	443A148	445A180	445A164	446A138	447A155	448A153	449A163	450A142	451A160	
D.1g	Equatorial Indices Dst	441A172	442A182	444A155	445A182	445A183	446A144	447A179	448A163	449A185	450A153	451A175		
D.1h	Geomagnetic Substorm Log (Boulder)	439A 40	440A 43	441A 51	442A 46	443A 40	444A 48	445A 4	446A 35	447A 47	448A 45	449A 39	450A 35	451A 52
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F.1b	Cosmic Ray Neutron Counts (Climax)	440A159	442A177	442A151	443A141	445A178	447A176	447A177	447A151	449A180	450A149	451A172		
F.1e	Cosmic Ray Neutron Counts (Alert)	440A145	442A177	442A151	444A152	447A176	447A176	447A177	447A151	449A180	450A149	450A134	451A151	
F.1h	Cosmic Ray Neutron Counts (Thule)	440A145	441A159	442A151	443A141	444A141	445A157	446A134	447A151	448A149	449A158	450A134	451A151	
F.1i	Cosmic Ray Neutron Counts (Kiel)	440A145	441A159	442A151	443A141	444A141	445A157	447A177	447A151	448A149	450A149	450A134	451A151	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	440A145	441A159	442A151	443A141	444A141	445A157	447A177	447A151	448A149	450A149	450A134	451A151	
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H.60	IUWDS Alert Decisions	439A 4	440A 5	441A 5	442A 5	443A 5	444A 5	445A 5	446A 4	447A 4	448A 4	449A 5	450A 5	451A 5

Notes:

"440A 52" listed under 1981 Feb means that the sunspot drawings for Feb 1981 were contained in *Solar-Geophysical Data* Number 440 - Part I, beginning on page 52.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 451 Part I (Prompt)

FEBRUARY 1982 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

FEBRUARY 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
032	01	31	398	298	025	N21W58	0	0	0	Presto Magstorm	01	N21W58	Q	SOLALERT 01/03
						N13W41	2	0	0	31/0102Z. Proton		N13W41	E	MAGALERT 01/02
						S13W35	0	0	0	Event 31/1630Z with		S13W35	Q	
						N20W30	0	0	0	800 Particles at		N20W30	Q	
						S09W13	1	0	0	Greater than 10 MEV.		S09W13	Q	
						N10W07	2	0	0	PCA 2.2 DB at		N10W07	Q	
						N09E02	9	1	0	31.1830Z		N09E02	A	
						S13E06	5	1	0			S13E06	A	
						N10E17	4	1	0			N10E17	A	
						N15E25	0	0	0			N15E25	Q	
						N16E36	0	0	0			N16E36	Q	
						S15E37	4	0	0			S15E37	E	
						S14E48	0	0	0			S14E48	Q	
						S19E57	1	0	0			S19E57	Q	
						S15E62	0	0	0			S15E62	Q	
						S05E78	0	0	0			S05E78	Q	
033	02	01	410	301	035	S12W46	1	0	0	Presto Soflare	02	S12W46	Q	SOLALERT 02/04
						N13W44	5	0	0	S14W09 01/1339Z		N13W44	Q	MAGALERT 02/03
						S08W28	2	0	0	Duration 161 Minutes		S08W28	Q	
						N11W25	0	0	0	Tenflare 1200 Flux		N11W25	Q	
						N12W13	0	0	0	Units 01/1351Z		N12W13	Q	
						S12W07	7	0	1	Duration 125 Minutes		S12W07	Q	
						N09E04	3	0	0	Proton Event		N09E04	Q	
						S13E07	0	0	0	Remains in Progress.		S13E07	Q	
						N14E15	4	0	0	Flare was X2/3B.		N14E15	Q	
						N17E20	1	0	0			N17E20	Q	
						S11E20	0	0	0			S11E20	Q	
						S16E25	6	0	0			S16E25	Q	
						S13E32	1	0	0			S13E32	Q	
						S18E45	0	0	0			S18E45	Q	
						S17E47	0	0	0			S17E47	Q	
						S07E63	4	0	0			S07E63	Q	
034	03	02	266	286	054	N13W67	1	0	0	Presto Soflare	03	N13W67	Q	SOLALERT 03/05
						S13W61	5	2	0	M3/2B 02/1846Z		S13W61	Q	MAGALERT 03/05
						S09W42	0	0	0	Duration 12 Minutes.		S09W42	E	
						N10W36	0	0	0	Satellite Proton		N10W36	Q	
						N10W29	2	0	0	Event in Progress		N10W29	A	
						S13W20	14	1	0	Increase Expected.		S13W20	P	
						N10W10	4	0	0	Flare at S15W57.		N10W10	E	
						N16E01	1	0	0			N16E01	Q	
						S18E12	5	1	0			S18E12	E	
						S13E17	0	0	0			S13E17	Q	
						N17E18	1	0	0			N17E18	Q	
						S19E31	0	0	0			S19E31	Q	
						S14E36	0	0	0			S14E36	Q	
						S06E47	2	0	0			S06E47	Q	
035	04	03	303	279	025	N11W81	0	0	0	Presto Soflare	04	N11W81	Q	SOLALERT 04/06
						S14W74	1	0	0	X1/2B S17W29		S14W74	E	MAGALERT 04/05
						S11W55	2	0	0	03/0105Z Duration		S11W55	E	
						N08W51	0	0	0	55 Minutes. Tenflare		N08W51	Q	
						N10W42	3	0	0	2000 Flux Units		N10W42	Q	
						S13W35	9	1	1	03/0100Z Duration		S13W35	P	
						N09W25	1	0	0	50 Minutes. Proton		N09W25	E	
						N16W13	0	0	0	Event in Progress.		N16W13	Q	
						S18W03	5	1	0	Kakioka 03/0615Z		S18W03	E	
						S13E02	0	0	0	Magstorm 03/0129Z.		S13E02	Q	
						N16E03	0	0	0			N16E03	Q	
						S19E16	0	0	0			S19E16	Q	
						S15E22	0	0	0			S15E22	Q	
						S06E33	5	1	0			S06E33	E	
						S17E62	0	0	0			S17E62	Q	
						S09E81	4	3	0			S09E81	A	
036	05	04	293	262	036	S15W88	1	0	0		05	S15W88	E	PROTON FLARE ALERT 05/06
						S11W66	0	0	0			S11W66	Q	MAGALERT 05/06
						N11W54	2	0	0			N11W54	E	
						S14W48	8	3	0			S14W48	P	
						N08W37	1	0	0			N08W37	E	
						N16W26	0	0	0			N16W26	Q	
						S19W15	5	1	0			S19W15	E	
						N16W12	0	0	0			N16W12	Q	
						S13W11	2	0	0			S13W11	Q	
						S19E04	0	0	0			S19E04	Q	
						S15E09	0	0	0			S15E09	Q	
						S06W16	0	0	0			S06W16	Q	
						S06E18	0	0	0			S06E18	E	
						S16E48	0	0	0			S16E48	Q	
						S10E67	7	1	0			S10E67	A	
037	06	05	289	252	030	S12W79	0	0	0		06	S12W79	Q	SOLALERT 06/XX
						N13W65	2	0	0			N13W65	E	MAGALERT MINOR 06
						S13W60	7	2	0			S13W60	A	
						N09W49	0	0	0			N09W49	E	
						N16W37	2	0	0			N16W37	Q	
						S04W29	0	0	0			S04W29	Q	
						N16W25	0	0	0			N16W25	Q	
						S18W26	2	0	0			S18W26	E	
						S14W23	0	0	0			S14W23		

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						S18W09	0	0	0			S18W09	Q	
						S06W07	0	0	0			S06W07	E	
						S14W03	0	0	0			S14W03	Q	
						N21E18	0	0	0			N21E18	Q	
						S17E36	0	0	0			S17E36	Q	
						S09E59	9	0	0			S09E59	A	
						S13E76	0	0	0			S13E76	Q	
						N02E77	0	0	0			N02E77	Q	
038	07	06	299	252	025	N13W78	0	0	0	Presto Soflare	07	N13W78	Q	SOLALERT 07/09
						S14W75	5	2	0	M6/2B S15W63		S14W75	E	MAGALERT
						N09W65	0	0	0	06/2050Z Duration		N09W65	Q	
						N16W53	1	0	0	12 Minutes. Tenflare		N16W53	Q	
						S06W44	2	0	0	1024 Flux Units		S06W44	Q	
						S19W39	2	0	0	06/2056Z In Progress.		S19W39	E	
						N15W39	1	0	0	Tenflare 250 Flux		N15W39	Q	
						S14W37	0	0	0	Units 06/2351Z		S14W37	Q	
						S18W23	1	0	0	Duration 30 Minutes		S18W23	Q	
						S15W16	0	0	0			S15W16	Q	
						S05W10	0	0	0			S05W10	Q	
						N20E07	0	0	0			N20E07	Q	
						S17E24	0	0	0			S17E24	Q	
						S09E48	13	3	0			S09E48	E	
						S14E63	0	0	0			S14E63	Q	
						N01E66	0	0	0			N01E66	Q	
039	08	07	313	247	018	S13W83	5	1	0	Presto Soflare	08	S13W83	E	SOLALERT 08/10
						N10W80	0	0	0	X1/2B S14W72		N10W80	Q	MAGNIL
						N16W70	1	0	0	07/1248Z Duration		N16W70	Q	
						S05W59	0	0	0	19 Minutes. Tenflare		S05W59	Q	
						N16W54	4	0	0	1300 Flux Units		N16W54	Q	
						S18W53	4	0	0	07/1250Z Duration		S18W53	E	
						S19W35	0	0	0	10 Minutes. Soflare		S19W35	Q	
						S04W28	0	0	0	M3/2B S14E27		S04W28	Q	
						S16E09	0	0	0	07/2047Z Duration		S16E09	Q	
						S19E23	0	0	0	15 Minutes.		S19E23	Q	
						S08E34	14	1	0			S08E34	E	
						S13E49	0	0	0			S13E49	Q	
						N01E53	0	0	0			N01E53	Q	
						S07E61	0	0	0			S07E61	Q	
						S12E70	1	0	0			S12E70	Q	
						N16E77	0	0	0			N16E77	Q	
040	09	08	331	258	018	N09W94	0	0	0	Presto Soflare	09	N09W94	Q	SOLALERT 09/XX
						N15W83	0	0	0	X1/1B S13W88		N15W83	Q	MAGQUIET
						S05W71	1	0	0	09/1245Z Duration		S05W71	Q	
						N15W68	2	0	0	13 Minutes.		N15W68	Q	
						S19W64	0	0	0	Tenflare 880 Flux		S19W64	Q	
						S20W49	0	0	0	Units 08/1249Z		S20W49	Q	
						S05W40	0	0	0	Duration 6 Minutes		S05W40	Q	
						S17W03	0	0	0			S17W03	Q	
						S19E11	0	0	0			S19E11	Q	
						S10E20	10	2	0			S10E20	A	
						S12E36	0	0	0			S12E36	Q	
						N02E40	0	0	0			N02E40	Q	
						S07E49	0	0	0			S07E49	Q	
						S12E56	0	0	0			S12E56	Q	
						N16E68	0	0	0			N16E68	Q	
041	10	09	278	238	015	S05W82	2	1	0	Presto Soflare	10	S05W82	Q	SOLALERT 10/XX
						N14W81	2	0	0	X1/Spray S13W90		N14W81	Q	MAGQUIET
						S19W78	1	0	0	09/0412Z Duration		S19W78	Q	
						S21W61	0	0	0	26 Minutes. Ten-		S21W61	Q	
						S05W54	0	0	0	flare 280 Flux		S05W54	Q	
						N23W03	0	0	0	Units 09/0404Z		N23W03	Q	
						S20W02	1	0	0	Duration 10		S20W02	Q	
						S09E03	10	2	0	Minutes.		S09E03	A	
						S08E17	0	0	0			S08E17	Q	
						S12E24	0	0	0			S12E24	Q	
						N01E25	0	0	0			N01E25	Q	
						N17E27	0	0	0			N17E27	Q	
						S07E34	0	0	0			S07E34	Q	
						S13E43	0	0	0			S13E43	Q	
						N15E52	0	0	0			N15E52	Q	
						N09E57	0	0	0			N09E57	Q	
042	11	10	285	219	030	S05W97	0	0	0	Presto Soflare	11	S05W97	E	SOLALERT 11/XX
						N14W93	0	0	0	M3/3B N16E55		N14W93	E	MAGALERT MINOR 11/12
						S19W92	2	1	0	10/0104Z Duration		S19W92	E	
						S20W73	2	0	0	28 Minutes. Tenflare		S20W73	Q	
						S05W67	1	0	0	570 Flux Units		S05W67	Q	
						N23W16	0	0	0	10/0052Z Duration		N23W16	Q	
						S20W15	3	0	0	20 Minutes. Soflare		S20W15	Q	
						S10W12	10	1	0	M3/2B S14W12		S10W12	A	
						S09E04	10	1	0	10/1816Z Duration		S09E04	Q	
						S13E12	1	0	0	40 Minutes.		S13E12	Q	
						N01E13	0	0	0			N01E13	Q	
						N16E16	0	0	0			N16E16	Q	
						S07E20	0	0	0			S07E20	Q	
						S13E32	1	0	0			S13E32	Q	

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
						N15E39	1	1	0			N15E39	E	
						N09E47	0	0	0			N09E47	Q	
043	12	11	249	221	028	N24W31	0	0	0	Presto SSC 10/1229Z	12	N24W31	Q	SOLALERT 12/14
						S20W28	0	0	0			S20W28	Q	MAGALERT 12/13
						S10W27	11	0	0			S10W27	A	
						S09W09	13	0	0			S09W09	A	
						N01E01	0	0	0			N01E01	Q	
						S13E01	1	0	0			S13E01	Q	
						S08E06	0	0	0			S08E06	Q	
						S13E18	0	0	0			S13E18	Q	
						N15E26	2	0	0			N15E26	Q	
						N10E36	0	0	0			N10E36	Q	
						N03E79	0	0	0			N03E79	Q	
044	13	12	198	210	024	N23W45	0	0	0	Presto Tenflare	13	N23W45	Q	SOLALERT 13/XX
						S10W40	8	2	0	240 Flux Units		S10W40	A	MAGALERT 13/XX
						S09W22	9	1	0	12/2132Z Duration		S09W22	E	
						N01W13	0	0	0	9 Minutes		N01W13	Q	
						S13W13	0	0	0			S13W13	Q	
						S08W07	1	0	0			S08W07	Q	
						S13E05	2	0	0			S13E05	Q	
						N15E13	1	0	0			N15E13	Q	
						N03E66	1	0	0			N03E66	Q	
045	14	13	197	213	030	N23W57	0	0	0		14	N23W57	Q	SOLALERT 14/XX
						S11W52	7	0	0			S11W52	A	MAGALERT 14/XX
						S10W33	2	0	0			S10W33	E	
						N01W26	1	0	0			N01W26	Q	
						S08W20	0	0	0			S08W20	Q	
						S14W09	2	0	0			S14W09	Q	
						N16W00	1	0	0			N16W00	Q	
						N05E54	7	1	0			N05E54	Q	
						N06E66	1	0	0			N06E66	Q	
046	15	14	209	190	042	N24W70	0	0	0		15	N24W70	Q	SOLALERT 15/XX
						S10W67	4	2	0			S10W67	A	MAGALERT 15/XX
						S10W48	3	1	0			S10W48	A	
						N02W39	1	0	0			N02W39	Q	
						S09W35	1	0	0			S09W35	Q	
						S14W24	0	0	0			S14W24	Q	
						N16W14	1	0	0			N16W14	Q	
						N05E37	6	0	0			N05E37	E	
						N06E49	0	0	0			N06E49	Q	
047	16	15	191	185	020	N24W85	0	0	0	Presto Tenflare	16	N24W85	Q	SOLNIL
						S09W79	1	0	0	260 Flux Units		S09W79	A	MAGNIL
						S09W60	4	0	0	15/1320Z Duration		S09W60	E	
						N02W52	0	0	0	2 Minutes.		N02W52	Q	
						S08W47	1	0	0			S08W47	Q	
						S12W37	3	0	0			S12W37	E	
						N16W26	1	0	0			N16W26	Q	
						N12E22	0	0	0			N12E22	Q	
						N04E24	9	1	0			N04E24	E	
						N05E37	0	0	0			N05E37	Q	
						N12E68	1	0	0			N12E68	Q	
048	17	16	145	175	007	S09W91	1	1	0		17	S09W91	E	SOLQUIET
						S09W73	0	0	0			S09W73	E	MAGQUIET
						N02W66	0	0	0			N02W66	Q	
						S09W62	0	0	0			S09W62	Q	
						S12W50	1	0	0			S12W50	Q	
						N16W39	0	0	0			N16W39	Q	
						N12E09	1	0	0			N12E09	Q	
						N05E10	6	0	0			N05E10	E	
						N06E22	1	0	0			N06E22	Q	
						N12E55	1	0	0			N12E55	E	
049	18	17	135	167	028	S09W86	0	0	0		18	S09W86	Q	SOLQUIET
						N02W80	0	0	0			N02W80	Q	MAGALERT MINOR 18/19
						S11W62	0	0	0			S11W62	Q	
						N16W53	0	0	0			N16W53	Q	
						N12W05	0	0	0			N12W05	Q	
						N05W04	6	1	0			N05W04	E	
						N06E07	2	0	0			N06E07	Q	
						N12E39	9	0	0			N12E39	E	
050	19	18	151	170	018	N01W92	0	0	0	Presto Soflare	19	N01W92	Q	SOLALERT 19/XX
						S12W74	0	0	0	M1/2B N09E30		S12W74	Q	MAGALERT MINOR 19
						N16W67	1	0	0	18/0903Z Duration		N16W67	Q	
						N04W18	10	1	0	21 Minutes. Tenflare		N04W18	A	
						N13W18	0	0	0	210 Flux Units		N13W18	Q	
						N06W04	0	0	0	18/0903Z Duration		N06W04	Q	
						S23W02	0	0	0	5 Minutes.		S23W02	Q	
						N12E28	5	1	0			N12E28	A	
										Presto Soflare M1/2B S00W27 19/1200Z Duration 106 Minutes.				

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										Presto Tenflare 200 Flux Units 19/1325Z Duration 18 Minutes.				
051	20	19	181	179	025	S12W88	0	0	0	Presto Soflare	20	S12W88	Q	PROTON FLARE ALERT 21/21 43104
						N15W79	0	0	0	M1/2B S00W27		N15W79	Q	MAGNIL
						N12W32	0	0	0	19/1200Z Duration		N12W32	Q	
						N04W31	11	1	0	106 Minutes.		N04W31	A	
						N06W18	1	0	0	Tenflare 200 Flux		N06W18	Q	
						S22W17	0	0	0	Units 19/1325Z		S22W17	Q	
						S09W14	0	0	0	Duration 18 Minutes.		S09W14	Q	
						N13E14	8	0	0			N13E14	A	
						N06E61	0	0	0			N06E61	Q	
						S12E71	0	0	0			S12E71	Q	
052	21	20	196	175	015	N12W45	0	0	0	Presto Soflare	21	N12W45	Q	PROTON FLARE ALERT 21 44404
						N04W44	11	1	0	M3/2B N00W38		N04W44	P	MAGQUIET
						N07W31	0	0	0	20/0915Z Duration		N07W31	Q	
						S23W30	0	0	0	25 Minutes.		S23W30	Q	
						N13E02	1	0	0	Tenflare 300 Flux		N13E02	A	
						N17E18	0	0	0	Units 20/0920Z		N17E18	Q	
						N06E46	0	0	0	Duration 26 Minutes.		N06E46	Q	
						S12E59	1	1	0	Soflare M1/2B		S12E59	Q	
						N08E71	0	0	0	S15E66 20/1756Z		N08E71	Q	
						S08E78	0	0	0	Duration 115 Minutes.		S08E78	Q	
053	22	21	189	169	018	S13W62	0	0	0	Presto Tenflare	22	S13W62	Q	PROTON NIL
						N04W58	4	0	0	250 Flux Units		N04W58	P	MAGQUIET
						N06W45	0	0	0	21/0122Z Duration		N06W45	Q	
						S23W45	0	0	0	40 Minutes.		S23W45	Q	
						N14W12	0	0	0			N14W12	E	
						N17E04	0	0	0			N17E04	Q	
						N05E32	0	0	0			N05E32	Q	
						S12E46	0	0	0			S12E46	Q	
						N09E55	0	0	0			N09E55	Q	
						S07E64	0	0	0			S07E64	Q	
						S12E77	0	0	0			S12E77	Q	
054	23	22	137	167	025	S13W80	0	0	0		23	S13W80	Q	SOLALERT 24
						N03W72	3	0	0			N03W72	A	MAGQUIET
						N06W60	0	0	0			N06W60	Q	
						N13W24	0	0	0			N13W24	E	
						S34W13	0	0	0			S34W13	Q	
						N06E17	0	0	0			N06E17	Q	
						S12E32	0	0	0			S12E32	Q	
						N09E41	0	0	0			N09E41	Q	
						S07E51	0	0	0			S07E51	Q	
						S19E69	0	0	0			S19E69	Q	
055	24	23	157	177	020	N02W86	1	0	0		24	N02W86	A	SOLNIL
						N06W73	1	0	0			N06W73	Q	MAGQUIET
						N13W38	2	0	0			N13W38	Q	
						N17W14	0	0	0			N17W14	Q	
						N06E04	1	0	0			N06E04	Q	
						S12E20	0	0	0			S12E20	Q	
						N09E28	0	0	0			N09E28	Q	
						S07E38	0	0	0			S07E38	Q	
						S10E49	0	0	0			S10E49	Q	
						S12E58	0	0	0			S12E58	Q	
						N04E70	0	0	0			N04E70	Q	
						N14E82	1	0	0			N14E82	Q	
056	25	24	149	188	022	N06W87	0	0	0		25	N06W87	Q	SOLQUIET
						N14W51	1	0	0			N14W51	Q	MAGQUIET
						N17W29	0	0	0			N17W29	Q	
						N06W09	0	0	0			N06W09	Q	
						S12E07	1	0	0			S12E07	Q	
						S08E25	0	0	0			S08E25	Q	
						S12E37	0	0	0			S12E37	Q	
						S14E50	1	0	0			S14E50	Q	
						N05E58	0	0	0			N05E58	Q	
						N15E66	5	0	0			N15E66	Q	
						S05E71	0	0	0			S05E71	Q	
057	26	25	168	188	030	N17W41	0	0	0		26	N17W41	Q	SOLQUIET
						N06W22	0	0	0			N06W22	E	MAGALERT MINOR 26/27
						S12W06	0	0	0			S12W06	Q	
						S07E11	0	0	0			S07E11	Q	
						S12E25	0	0	0			S12E25	Q	
						S13E36	0	0	0			S13E36	Q	
						N05E45	1	0	0			N05E45	Q	
						N14E53	6	0	0			N14E53	E	
						S06E56	1	0	0			S06E56	Q	
						N08E61	0	0	0			N08E61	Q	
						N16E67	0	0	0			N16E67	Q	
058	27	26	202	208	028	N17W56	0	0	0		27	N17W56	Q	SOLQUIET
						N06W35	0	0	0			N06W35	Q	MAGALERT MINOR 27

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						S12W19	0	0	0			S12W19	Q	
						N09W11	0	0	0			N09W11	Q	
						S06W02	0	0	0			S06W02	Q	
						S12E12	0	0	0			S12E12	Q	
						S12E22	0	0	0			S12E22	Q	
						N05E32	0	0	0			N05E32	Q	
						N16E41	6	1	0			N16E41	E	
						S05E42	0	0	0			S05E42	Q	
						N09E48	0	0	0			N09E48	Q	
						N17E55	2	1	0			N17E55	E	
						S20E75	2	0	0			S20E75	Q	
059	28	27	196	226	010	N18W69	0	0	0		28	N18W69	Q	SOLQUIET
						N06W49	0	0	0			N06W49	Q	MAGNIL
						S12W31	0	0	0			S12W31	Q	
						S06W15	1	0	0			S06W15	Q	
						S12W01	0	0	0			S12W01	Q	
						S12E08	1	0	0			S12E08	Q	
						N05E15	1	0	0			N05E15	Q	
						N16E27	2	0	0			N16E27	E	
						S14E28	0	0	0			S14E28	Q	
						S04E31	0	0	0			S04E31	Q	
						N09E35	0	0	0			N09E35	Q	
						N18E42	2	0	0			N18E42	E	
						S20E65	3	0	0			S20E65	E	
060	01	28	237	228	007	S11W45	0	0	0	Presto Toyokawa	01	S11W45	Q	SOLQUIET
						S06W28	0	0	0	Tenflare 140 Flux		S06W28	Q	MAGQUIET
						S12W15	0	0	0	Units 0450Z		S12W15	Q	
						S13W05	0	0	0	Duration 5 Minutes.		S13W05	Q	
						N05E02	0	0	0			N05E02	Q	
						S16E12	3	0	0			S16E12	E	
						N15E13	7	1	0			N15E13	E	
						S05E18	1	0	0			S05E18	Q	
						N09E19	0	0	0			N09E19	Q	
						N17E30	7	0	0			N17E30	E	
						S21E52	4	0	0			S21E52	E	
						S14E57	0	0	0			S14E57	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

01 FEBRUARY 1982 KAKIOKA 01/0100Z MAGSTORM 31/0102Z
01 FEBRUARY 1982 BOULDER 01/1430Z MAGSTORM IN PROGRESS K=6 190 GAMMA
01 FEBRUARY 1982 BOULDER 01/1430Z SOFLARE X2/3B N02W10 01/1409Z DURATION 45 MINUTES
01 FEBRUARY 1982 BOULDER 01/1430Z TENFLARE 1178 FLUX UNITS 01/1359Z DURATION 15 MINUTES
02 FEBRUARY 1982 BOULDER 02/2005Z SOFLARE M3/2B S15W57 02/1849Z DURATION 12 MINUTES
02 FEBRUARY 1982 MITAKA 02/0107Z SOFLARE IMPORTANCE 2 S18W27
03 FEBRUARY 1982 SYDNEY 03/0120Z TENFLARE FLEURS START 0102Z MAXIMUM 0115Z 800 FLUX UNITS
03 FEBRUARY 1982 SYDNEY 03/0120Z CULGOORA SOFLARE REGION 3576 1B
03 FEBRUARY 1982 SYDNEY 03/0135Z SUDDEN COMMENCEMENT 03/0129Z
03 FEBRUARY 1982 TOYOKAWA 03/0155Z TENFLARE 2000 FLUX UNITS 03/0100Z DURATION 50 MINUTES
03 FEBRUARY 1982 BOULDER 03/0243Z SOFLARE X1/2B S17W29 03/0104Z DURATION 45 MINUTES
03 FEBRUARY 1982 BOULDER 03/0243Z TENFLARE 2000 FLUX UNITS 03/0100Z DURATION 50 MINUTES
03 FEBRUARY 1982 KAKIOKA 03/0615Z MAGSTORM 03/0129Z
06 FEBRUARY 1982 BOULDER 06/2130Z SOFLARE M6/2B S15W63 06/2151Z DURATION 12 MINUTES
06 FEBRUARY 1982 BOULDER 06/2130Z TENFLARE 1024 FLUX UNITS 06/2056Z IN PROGRESS
06 FEBRUARY 1982 TOYOKAWA 06/2351Z TENFLARE 250 FLUX UNITS DURATION 30 MINUTES
07 FEBRUARY 1982 BOULDER 07/1441Z SOFLARE X1/2B S14W72 07/1248Z DURATION 19 MINUTES
07 FEBRUARY 1982 BOULDER 07/1441Z TENFLARE 1300 FLUX UNITS 07/1250Z DURATION 10 MINUTES
07 FEBRUARY 1982 BOULDER 07/2124Z SOFLARE M3/2B S14E27 07/2047Z DURATION 15 MINUTES
08 FEBRUARY 1982 BOULDER 08/1430Z SOFLARE X1/1B S13W88 08/1245Z DURATION 13 MINUTES
08 FEBRUARY 1982 BOULDER 08/1249Z TENFLARE 880 FLUX UNITS 08/1249Z DURATION 6 MINUTES
09 FEBRUARY 1982 BOULDER 09/0420Z SOFLARE X1/SPRAY 09/0412Z IN PROGRESS
09 FEBRUARY 1982 TOYOKAWA 09/0430Z TENFLARE 280 FLUX UNITS 09/0404Z DURATION 10 MINUTES
10 FEBRUARY 1982 BOULDER 10/0130Z SOFLARE M3/3B N16E55 10/0104Z DURATION 28 MINUTES
10 FEBRUARY 1982 BOULDER 10/0130Z TENFLARE 570 FLUX UNITS 10/0052Z DURATION 20 MINUTES
10 FEBRUARY 1982 TOYOKAWA 10/0140Z TENFLARE 1000 FLUX UNITS 10/0052Z DURATION 30 MINUTES
10 FEBRUARY 1982 PARIS 10/1229Z SSC 10/1229Z
12 FEBRUARY 1982 BOULDER 12/2240Z TENFLARE 240 FLUX UNITS 12/2132Z DURATION 9 MINUTES
15 FEBRUARY 1982 BOULDER 15/1520Z TENFLARE 260 FLUX UNITS 15/1320Z DURATION 2 MINUTES
18 FEBRUARY 1982 BOULDER 18/1400Z SOFLARE M1/2B N09E30 18/0903Z DURATION 21 MINUTES
18 FEBRUARY 1982 BOULDER 18/1400Z TENFLARE 210 FLUX UNITS 18/0903Z DURATION 5 MINUTES
19 FEBRUARY 1982 BOULDER 19/1440Z SOFLARE M1/2B S00 W27 19/1200Z DURATION 106 MINUTES
19 FEBRUARY 1982 BOULDER 19/1440Z TENFLARE 200 FLUX UNITS 19/1325Z DURATION 18 MINUTES
20 FEBRUARY 1982 BOULDER 20/1015Z SOFLARE M3/2B N00W38 20/0915Z DURATION 25 MINUTES
20 FEBRUARY 1982 BOULDER 20/1015Z TENFLARE 300 FLUX UNITS 20/0920Z DURATION 26 MINUTES
20 FEBRUARY 1982 BOULDER 20/2300Z SOFLARE M1/2B S15E66 20/1756Z DURATION 115 MINUTES
21 FEBRUARY 1982 TOYOKAWA 21/0233Z TENFLARE 250 FLUX UNITS 21/0122Z DURATION 40 MINUTES
21 FEBRUARY 1982 BOULDER 21/0230Z TENFLARE 300 FLUX UNITS 21/0128Z DURATION 9 MINUTES
28 FEBRUARY 1982 TOYOKAWA 28/0536Z TENFLARE 140 FLUX UNITS 28/0450Z DURATION 5 MINUTES

RELATIVE SUNSPOT NUMBERS
INTERNATIONAL, R_I

1981 PROVISIONAL — 1982

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	147	132	112	62	149	121	219	216	165	162	92	258
2	182	170	133	59	140	105	183	206	222	197	94	241
3	169	148	156	44	140	112	160	219	218	212	112	232
4	183	151	152	62	112	109	170	189	231	201	109	221
5	141	157	162	55	112	113	195	195	207	200	99	219
6	138	132	178	57	85	102	220	169	199	232	86	230
7	130	152	171	61	75	107	205	171	192	244	94	226
8	142	195	177	52	62	115	208	185	166	249	97	232
9	124	199	158	58	65	121	190	177	134	247	98	211
10	127	199	148	55	96	138	202	144	147	271	85	199
11	130	200	169	66	130	136	164	131	146	249	46	158
12	128	193	183	79	139	140	138	114	150	209	52	156
13	127	197	149	86	153	134	132	183	158	185	51	162
14	128	180	140	99	145	140	148	187	178	159	58	142
15	110	212	141	104	150	153	129	212	148	113	81	134
16	128	197	127	109	161	134	138	223	126	66	76	111
17	109	213	124	119	171	125	129	219	103	80	111	120
18	95	214	119	104	161	148	145	214	102	79	139	103
19	86	203	100	85	151	175	169	189	90	74	143	107
20	120	199	77	71	145	188	134	183	82	57	134	119
21	135	170	99	87	129	222	175	151	78	72	134	120
22	134	122	106	106	138	220	172	130	79	73	121	100
23	121	108	93	119	162	200	137	107	65	86	93	97
24	125	92	96	109	196	178	148	109	59	76	70	120
25	142	119	93	127	213	189	142	101	60	62	82	115
26	133	90	105	127	206	215	171	92	74	100	119	136
27	126	73	79	133	218	222	181	63	87	104	125	140
28	135	72	93	112	208	214	195	92	110	136	168	145
29	160	106	92	138	159	194	191	131	134	122	216	
30	184	92	83	148	173	233	190	152	155	102	211	
31	108		92		126	201		144		140	237	
MEAN	133.8	156.2	126.0	89.8	144.2	158.2	169.3	161.2	135.6	147.1	110.7	162.6

1980 YEARLY MEAN = 154.6

* ZURICH R_z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO
FLUX ADJUSTED TO 1 A.U., S_a

1981 — 1982

DAY	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
1	224.4*	210.8*	188.0	149.6	175.4	183.9	248.3	210.6*	222.5*	230.7*	179.9	284.8*
2	230.6*	211.2*	193.4	144.3	168.9	182.6	242.8	204.8*	241.3*	230.3*	177.2	279.7*
3	238.9*	221.2	206.5*	134.9	163.3*	192.4	229.0	196.5	255.3*	238.6	176.1	272.9*
4	245.6*	219.7	221.2	133.8	165.9	190.6*	233.4	191.1	263.1	241.7	170.4	252.8*
5	227.3	226.2	237.5	136.0	152.5	178.8	248.7	193.6*	254.1	260.0	165.5	245.2
6	212.7	235.7	231.2	140.6	148.7	179.6	263.2*	200.3	244.6	262.1	166.8	245.2
7	201.4	242.3	234.2	146.7	149.8	173.0	262.5*	204.1*	241.4	275.6*	166.9*	239.9
8	200.6*	268.8*	222.4*	146.7*	152.4	178.4	266.3*	200.7*	234.7*	287.8	156.9	245.1*
9	202.9	287.7	218.6	152.8	150.0*	180.5	256.5	205.4*	232.6	292.4*	164.4	231.7
10	203.1	268.8*	217.7*	157.1	156.5*	182.0	247.6	213.4	231.0*	278.7	145.7	213.7
11	199.7	272.1	228.1*	154.8	167.4	206.4	240.8	220.0	217.0	266.7*	136.3	211.1*
12	188.8	251.9	223.4	152.0	167.7*	209.0*	234.2	236.8*	223.5	254.2*	132.4	204.0*
13	202.1	254.9*	221.3	152.6	174.2*	208.7	230.2	256.2	215.9	218.9	127.5	194.9*
14	208.9	256.5*	232.5	159.1	184.2	208.2	228.7*	275.6	207.4	193.0	130.5	185.3
15	206.3*	254.9*	223.9	164.7	194.5*	225.1	230.4	287.1	191.2	172.6	136.3	180.3
16	194.9	247.5*	218.9	169.1	205.3*	221.8*	227.5	302.4	181.2	157.4	146.7	170.5
17	181.5	242.7	207.6	171.2	200.8*	228.7	218.2*	302.9	172.7	144.2	152.6	162.5
18	180.0	229.2	194.4	170.1	204.7*	244.1	216.5*	296.5*	160.8*	136.3*	167.6	165.7
19	175.1	214.9	186.6*	165.9	220.3	254.6*	210.5*	278.6	157.0	129.7	169.4	170.9*
20	182.7	200.9*	180.0	159.8	234.7*	269.8	200.1	257.8*	152.0	133.9	167.0	171.3
21	189.5	196.1	180.4	153.6	228.1*	267.1*	191.2	238.2	153.9	142.2	163.3	165.2
22	189.4*	191.5	169.3*	166.1*	235.9	262.2*	183.0	218.6	152.7	145.9	152.9	163.7
23	188.0*	204.9	159.6	171.2*	254.7*	254.8	183.8	208.2	151.9	153.0	148.0	173.1
24	191.4	203.0*	169.8	174.6	261.6*	258.9	182.2	201.1	150.4	156.1*	149.1	185.9*
25	199.3	203.8*	177.2	183.6	259.7	254.8	182.0	186.0	159.1	162.1	169.3*	184.1
26	198.6*	198.8	173.8	193.9	273.1*	272.9*	188.8	172.0	178.3*	166.2	182.7*	204.0
27	197.6	194.7*	177.0	193.4	255.8*	281.6*	202.8	171.2	190.3	176.8	197.2	222.1
28	203.7*	178.2*	181.3	191.6	223.6	275.3	200.9	182.4	206.4*	183.0	234.7	224.0
29	212.4*	176.9	170.6	187.5*	213.3	259.1	204.5	187.5	226.5*	183.6	267.0	.
30	208.2	175.3	164.6*	179.0	204.2*	265.1	203.8	201.5	231.6	185.7	284.5	.
31	214.0*	.	156.1	.	197.6	256.0*	.	207.1	.	182.8	289.1	.
MEAN	203.2	224.7	198.9	161.9	198.2	226.0	221.9	222.8	203.3	201.4	173.4	208.9

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

FEBRUARY 1982

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.							
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	32	25	258	248	293.3*				284.8*					
2	33	26	241	237	288.1*	671	375	304	279.7*		225			
3	34	27	232	229	281.1*	847	356	280	272.9*	244	218	74	49	
4	35	1	221	216	260.1*	666	375	283	252.8*	225	211		52	
5	36	2	219	206	252.3	615	385	288	245.2	219	195	134	46	
6	37	3	230	217	252.3	644	382	300	245.2	223	187	128	48	
7	38	4	226	236	246.6	637	383	284	239.9	213	180	154	55	
8	39	5	232	213	251.9*	648	386	301	245.1*	225	198	125	49	
9	40	6	211	197	238.1	637	348	265	231.7	212	185	131	54	
10	41	7	199	179	219.4	638	361	262	213.7	188	169	134	47	
11	42	8	158	157	216.7*	591	376	264	211.1*	192	172	158	52	
12	43	9	156	143	209.4*	568	336	249	204.0*	185	169	111	48	
13	44	10	162	154	199.9*	607	346	251	194.9*	180	169	132	57	
14	45	11	142	131	190.0	601	311	224	185.3	165	149	123	48	
15	46	12	134	126	184.9	595	299	218	180.3	159	150	112	42	
16	47	13	111	108	174.7	590	298	205	170.5	150	143	127	90	
17	48	14	120	112	166.5	602	286	191	162.5	146	136	117	63	
18	49	15	103	96	169.6	500	283	197	165.7	148	143	129	63	
19	50	16	107	109	174.9*	521	287	207	170.9*	155	144	81	71	
20	51	17	119	130	175.2				171.3					
21	52	18	120	119	168.9	576	282	189	165.2	144	138	59	46	
22	53	19	100	102	167.4	603	288	186	163.7	144	145	70	52	
23	54	20	97	102	176.8	608	287	193	173.1	152	153	54	44	
24	55	21	120	114	189.9*				185.9*					
25	56	22	115	125	187.9	611	318	200	184.1	167	166	93	62	
26	57	23	136	128	208.2	615	303	213	204.0	179	181	84	53	
27	58	24	140	141	226.4	624	321	233	222.1	215	192	105	51	
28	59	25	145	143	228.3	615	319	235	224.0	218	188	98	50	
MEAN			162.6	157.8	214.2	617	332	240	208.9	185	172	110	62	

*Adjusted for burst.

NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Mar 79	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153*	136.0	144	144.1	151	190.8	197
Aug	135.4	150*	133.0	144	121.9	150	170.3	196
Sep	155.0	150*	150.0	146	138.8	152	185.9	198
Oct	164.7	150*	160.8	149	157.1	154	202.9	200
Nov	147.9	148*	149.9	149	168.5	153	213.4	199
Dec	174.4	142*	167.5	145	174.3	150	218.8	196
Jan 81	114.4†	140*	115.4	144	120.5	149	169.0	195
Feb	143.5†	141*	143.7	146	153.5	152	199.5	198
Mar	133.8†	143*	149.2	149	157.5	156	203.2	202
Apr	156.2†	143*	169.2	149	180.7	158	224.7	204
May	126.0†	143*	141.3	149	152.8	159	198.9	204
Jun	89.8†	141*	99.0	147	112.9	158	161.9	203
Jul	144.2†	140*	154.3	146	152.1	157	198.2	203
Aug	158.2†	140*	170.4	145	182.1	158	226.0	203
Sep	169.3†	139(± 5)*	174.5	143	177.7	157	221.9	---
Oct	161.2†	138(± 7)*	157.0	142	178.6	155	222.8	---
Nov	135.6†	134(± 9)*	138.8	138	157.6	151	203.3	---
Dec	147.1†	130(±10)*	145.0	134	155.5	146	201.4	---
Jan 82	110.7†	126(±11)*	110.4	130	124.2	141	173.4	---
Feb	162.6†	122(±12)*	---	125	163.6	136	208.9	---
Mar	---	119(±13)*	---	122	---	133	---	---
Apr	---	116(±13)*	---	119	---	130	---	---
May	---	113(±12)*	---	116	---	126	---	---
Jun	---	110(±13)*	---	112	---	122	---	---
Jul	---	105(±12)*	---	108	---	117	---	---
Aug	---	100(± 9)*	---	103	---	111	---	---

*An asterisk denotes either a value of the observed 12-month running mean or the predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

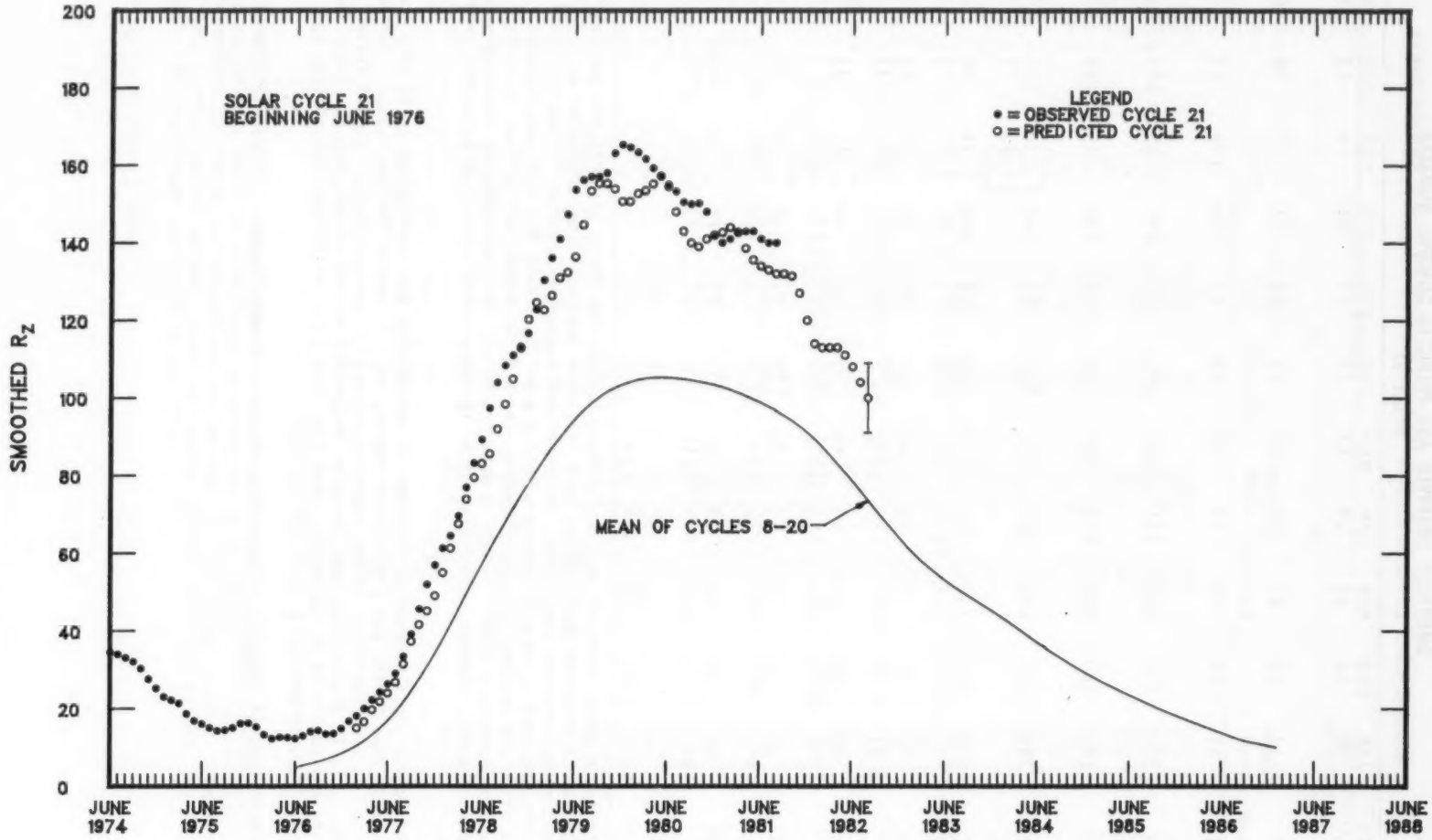
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	142
1981	140	141	143	143	143	141	140	140	139	138	134	130
									(5)	(7)	(9)	(10)
1982	126	122	119	116	113	110	105	100	96	90	86	82
	(11)	(12)	(13)	(13)	(12)	(13)	(12)	(9)	(9)	(7)	(8)	(9)
1983	79	76	74	72	69	67	65	64	62	62	62	61
	(9)	(9)	(10)	(12)	(15)	(17)	(18)	(20)	(22)	(24)	(24)	(25)
1984	59	57	53	50	48	47	46	44	43	41	39	37
	(25)	(25)	(25)	(26)	(28)	(29)	(29)	(29)	(29)	(27)	(26)	(26)
1985	36	36	35	35	34	32	31	30	29	28	27	27
	(26)	(25)	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(21)	(22)	(22)
1986	26	25	24	23	21	19	17	16	16	15	15	14
	(22)	(22)	(22)	(22)	(21)	(20)	(19)	(19)	(17)	(16)	(15)	(13)
1987	14	14	14	15	15	16	18					
	(12)	(12)	(12)	(13)	(14)	(15)	(15)					

The table gives observed *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980 and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1981 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1981). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

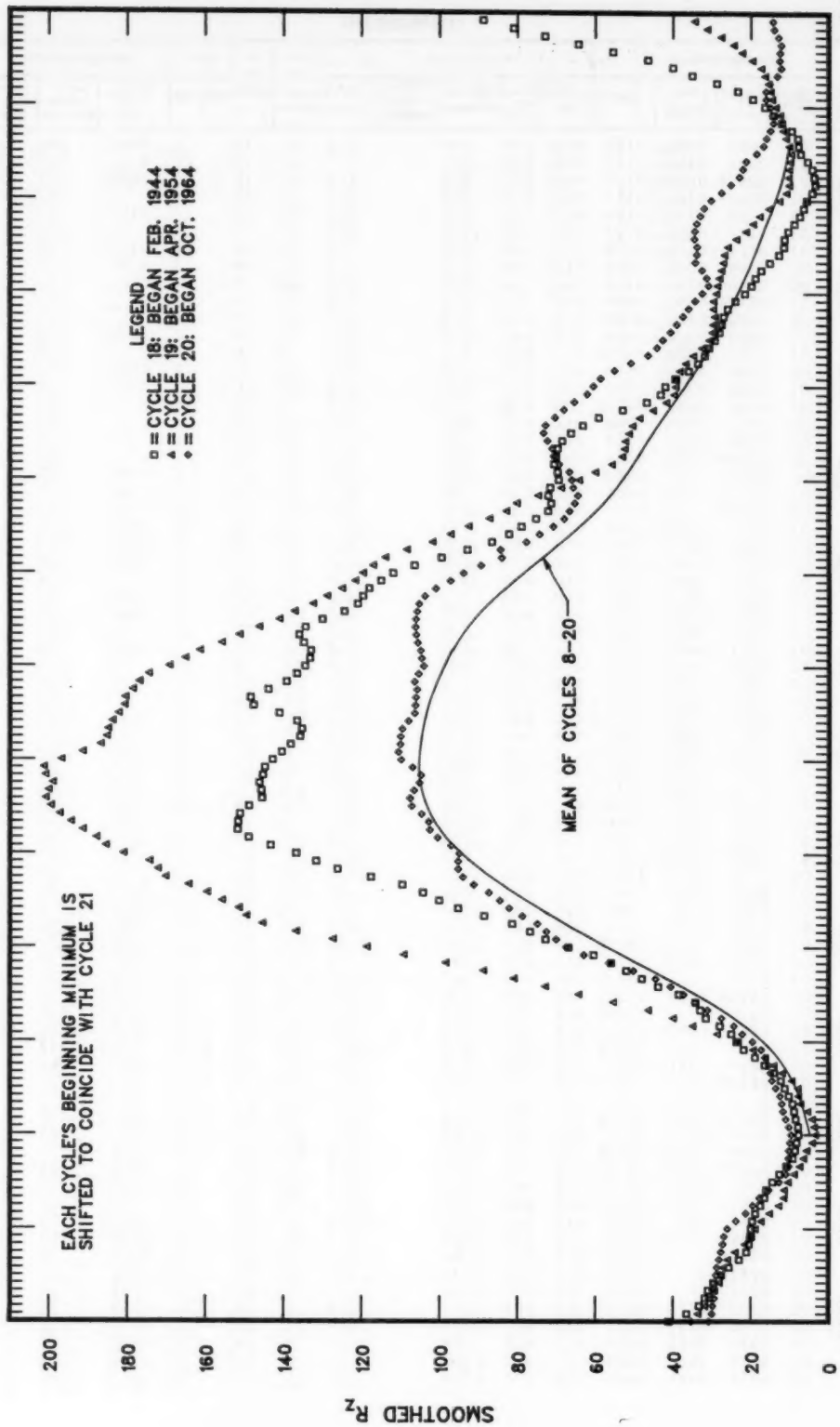
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



Hα SOLAR FLARES

FEBRUARY 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PEKG	01	0035	0040	0125	N10	E04	.284		1.3	50	1B		C	0040	260	2.8	KU
PEKG	01	0035	0112	0125	N09	E02	.261		1.2	50	1N		P	0112	210	2.2	F
YUNN	01	0050E	0050U	0127	N09	E03	.264		1.3	37	1N		P	0050	252	2.7	F
YUNN	01	0110E	0112	0117	S16	E29	.502		3.2	7	SN		P		157	1.9	E
PEKG	01	0110	0112	0120	S17	E29	.506		3.2	10	SN		C	0112	67	.8	E
YUNN	01	0112	0114	0127	S13	E04	.140		1.3	15	SN		C		79	.8	E
PEKG	01	0112	0114	0120	S13	E04	.140		1.3	8	SN		C	0114	97	1.0	E
PEKG	01	0304	0305	0325	S13	E09	.196		1.8	21	SN		P	0305	46	.5	D
PEKG	01	0340	0342	0358	N09	E16	.373		2.4	18	SN		C	0342	97	1.1	E
YUNN	01	0340E	0347	0404	N10	E17	.396		2.4	24	SN		P		157	1.8	EK
YUNN	01	0418E	0419	0428	S13	E02	.126		1.3	10	SN		P		126	1.3	E
PEKG	01	0419	0420	0428	S14	E01	.140		1.3	9	SN		C	0420	76	.8	E
YUNN	01	0517	0520	0523D	S16	E27	.474		3.2	60	1N		P		189	2.2	
PEKG	01	0525	0526U	0530	S17	E27	.479		3.3	5	SN		P	0526	42	.5	E
PEKG	01	0720	0725	0740	S09	E67	.916		6.3	20	1F		P	0725	168		F
YUNN	01	0720	0723	0723D	S06	E69	.931		6.5	30	SN		C		32		E
YUNN	01	0727	0737	0756	N14	E27	.551		3.3	29	SN		C		47	.6	E
YUNN	01	0730	0731	0734	S12	E09	.186		2.0	4	SN		C		47	.5	D
YUNN	01	0732E	0732	0752	S07	E66	.910		6.3	20	SN		C		31		EK
HTPR	01	0742E		0806	S14	E07	.183		1.8	24	SF		C	0747	20	.2	
HTPR	01	0742E		0800	N12	E18	.429		2.7	18	SF		C	0748	30	.3	
HTPR	01	0742E		0810	N16	E30	.601		3.6	28	SF		C	0749	70	.8	E
HTPR	01	0810	0812	0817	N13	W47	.771		28.8	7	SN		C	0812	50	.7	
HTPR	01	0828	0836	0900	S13	W01	.123		1.3	32	SB		C	0836	180	1.8	E
PEKG	01	0829	0840	0850	S13	E00	.122		1.4	21	SN		C	0840	168	1.8	E
YUNN	01	0831	0836	0913	S14	W00	.139		1.4	42	1N		C		204	2.1	F
PEKG	01	0837	0840	0845	N12	W02	.311		1.2	8	SF		C	0840	76	.8	E
HTPR	01	0839	0843	0849	N13	W02	.327		1.2	10	SN		C	0843	40	.4	E
YUNN	01	0840	0844	0851	N13	W01	.326		1.3	11	SN		C		63	.7	E
HTPR	01	0841	0842	0849	S19	E34	.581		3.9	8	SF		C	0842	30	.4	E
YUNN	01	0912	0921	0952	S14	E40	.645		4.4	40	1N		C		220	3.0	F
HTPR	01	0915	0923	0940	S14	E42	.670		4.5	25	SB		C	0923	150	1.9	E
YUNN	01	0934	0943	0958	N10	W02	.278		1.2	24	SN		C		79	.8	E
HTPR	01	0935	0941	1016	N10	W04	.284		1.1	41	SB		C	0941	30	.3	E
HTPR	01	1023	1027	1035	S14	W01	.140		1.4	12	SF		C	1027	30	.3	E
HTPR	01	1044	1047	1057	S18	W06	.231		1.0	13	SF		C	1047	30	.3	E
HTPR	01	1047	1049	1052	S14	W01	.140		1.4	5	SF		C	1049	20	.2	
HTPR	01	1119	1131	1142	S11	E13	.238		2.4	23	SF		C	1131	40	.4	E
HTPR	01	1144	1145	1154	N16	E23	.525		3.2	10	SN		C	1145	40	.4	E
HTPR	01	1159	1200	1206	S14	W02	.143		1.3	7	SF		C	1200	30	.3	E
HTPR	01	1221	1244	1253	S12	E04	.125		1.8	32	SN		C	1244	70	.7	E
HTPR	01	1222	1225	1236	N15	E21	.494		3.1	14	SN		C	1225	20	.2	
HTPR	01	1237	1242	1248	N09	E10	.309		2.3	11	SF		C	1242	40	.4	E
HTPR	01	1237	1242	1302	N12	W01	.310		1.5	25	SF		C	1242	40	.4	E
HTPR	01	1320	1337	1350	S14	E02	.143		1.7	30	SF		C	1337	20	.2	
HTPR	01	1339	1344	1401	S14	E40	.645		4.6	22	SN		C	1344	100	1.3	E
HTPR	01	1350		1609D	S16	W10	.242		31.8	139D	3B		C	1410	1300	13.0	EUW
HTPR	01	1353	1354	1413	N10	W08	.307		1.0	20	SN		C	1354	70	.7	E
HTPR	01	1412		1609D	S13	W18	.327		31.2	117D	1B		C	1430	220	2.2	W
HTPR	01	1505	1509	1534	N08	E08	.278		2.2	29	SF		C	1509	30	.3	E
HTPR	01	1528		1609D	S14	W06	.173		1.2	41D	2B		C	1542	600	6.0	
BIGB	01	1546E	1547U	1725	S14	W01	.140		1.6	99	2B	2	P	1547	600	6.2	
BIGB	01	1923	1946	2027D	N16	W15	.447		31.7	64D	1B	2	P	1946	240	2.6	
BIGB	01	1937	1941	2024	S14	W06	.173		1.4	47	SN	2	C	1941	160	1.7	
PALE	01	2003E	2010U	2040D	S20	E05	.256		2.2	37D	SF	1	C		25		
YUNN	02	0034E	0034U	0035D	S14	W08	.194		1.4	1D	SN		P	0034	31	.3	
YUNN	02	0244	0248	0303	S12	W49	.751		29.4	19	1B		C		189	2.9	
PEKG	02	0300	0326U	0357D	S13	W49	.752		29.5	57D	SN		P	0326	130	2.0	F
YUNN	02	0314E	0314U	0319	N16	E23	.526		3.9	5	SN		P	0314	79	1.0	DG
YUNN	02	0317	0326	0347D	S16	W49	.754		29.5	30D	SB		P	0329	110	1.7	F
YUNN	02	0327	0329	0335D	N13	W54	.838		29.1	8D	SN		P		47	.9	F
PEKG	02	0353	0357	0359	S15	W11	.242		1.3	6	SF		C	0357	50	.5	D
YUNN	02	0649E	0650U	0715	N10	E06	.295		2.7	26	SF		P	0650	157	1.7	
HTPR	02	0741E		0758	S14	W15	.288		1.2	17	SF		C	0742	20	.2	
HTPR	02	0741E		0752	S14	W12	.245		1.4	11	SF		C	0745	20	.2	
HTPR	02	0741E		0833	S14	W08	.194		1.7	52	SF		C	0754	30	.3	
HTPR	02	0747	0749	0750	S11	W05	.121		1.9	3	SN		C	0749	20	.2	
HTPR	02	0748	0753	0827	N14	W33	.621		30.9	39	SN		C	0753	120	1.4	E
HTPR	02	0822	0823	0824	S15	W15	.296		1.2	2	SN		C	0823	60	.6	
HTPR	02	0824	0825	0828	S15	W20	.368		31.8	4	SN		C	0825	70	.7	E
HTPR	02	0838	0841	0849	N10	E01	.278		2.4	11	SN		C	0841	20	.2	

Hα SOLAR FLARES

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	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
MONT	02	0855	0857	0901	S13	W10	.209		1.6	6	SF		C	0857	50		E
HTPR	02	0857	0900	0907	S14	W10	.219		1.6	10	SF		C	0900	30	.3	
HTPR	02	0857	0859	0912	S14	W09	.206		1.7	15	SF		C	0859	40	.4	E
MONT	02	0858	0901	0925	S13	E29	.491		4.5	27	SN		C	0901	110		
HTPR	02	0859	0903	0935	S14	E30	.508		4.6	36	SF		C	0903	50	.5	E
HTPR	02	0905	0909	0926	S17	E17	.340		3.7	21	SF		C	0909	50	.5	E
MONT	02	0907	0909	0918	S17	E15	.314		3.5	11	SF		C	0909	50		E
WEND	02	0912E		0920	S17	E13	.288		3.4	8	SN		C	0912	62	.7	
WEND	02	0929	0941	1002	N10	W15	.374		1.3	33	SN		C	0941	110	1.2	
MONT	02	0930	0941	0951	N13	W15	.410		1.3	21	SN		C	0941	110		
HTPR	02	0931	0936	1003	N08	W20	.413		31.9	32	SB		C	0936	120	1.2	E
WEND	02	0934	0939	0954	S13	W11	.222		1.6	20	SF		C	0939	46	.5	
HTPR	02	0934	0942	1025	S14	W12	.245		1.5	51	SF		C	0942	50	.5	E
HTPR	02	1027	1056	1212	S11	W33	.544		31.0	105	1B		C	1043	220	2.6	EU
MONT	02	1028	1042	1126	S11	W33	.544		31.0	58	2B		C	1042	700		
WEND	02	1029	1043	1125	S12	W33	.546		31.0	56	1B		C	1043	250	3.1	L
HTPR	02	1109	1121	1155	S13	W04	.138		2.2	46	SF		C	1121	20	.2	E
HTPR	02	1136	1210	1302	S17	E15	.314		3.6	86	1B		C	1210	280	2.8	EU
WEND	02	1145	1212	1253	S17	E12	.276		3.4	68	1B		C	1212	263	2.9	
MONT	02	1147	1152	1152D	S17	E15	.314		3.6	5D	SN		C	1152	150		
HTPR	02	1204	1205	1210	N12	W15	.398		1.4	6	SN		C	1205	40	.4	E
HTPR	02	1310	1312	1318	S14	W13	.259		1.6	8	SF		C	1312	20	.2	E
HTPR	02	1310	1320	1328	S08	W22	.373		31.9	18	SF		C	1320	30	.3	
HTPR	02	1312	1318	1326	S14	W26	.450		31.6	14	SF		C	1318	20	.2	
HTPR	02	1331	1341	1417	S13	W60	.861		29.1	46	SB		C	1341	80	1.6	E
WEND	02	1335	1344	1358	S13	W55	.815		29.4	23	SN		C	1344	110	2.0	
HTPR	02	1416	1419	1439	N13	W22	.485		31.9	23	SB		C	1419	50	.5	E
WEND	02	1416	1420	1427	N11	W16	.397		1.4	11	SF		C	1420	22	.2	
HTPR	02	1505	1513	1536	N16	W19	.485		1.2	31	SN		C	1513	40	.4	E
WEND	02	1507	1512	1523	N14	W16	.432		1.4	16	SF		C	1512	31	.3	
HTPR	02	1507	1512	1540	N13	W22	.485		1.0	33	SN		C	1512	40	.4	E
HTPR	02	1531	1537	1541	S08	W23	.389		31.9	10	SF		C	1537	30	.3	
HTPR	02	1534		1544	S14	W14	.274		1.6	10	SF		C	1536	20	.2	
BIGB	02	1552	1553	1614	S16	W16	.318		1.5	22	SN	2	C	1553	80	.9	
HTPR	02	1556E		1605	S15	W19	.353		1.2	9	SN		C	1556	50	.5	E
BIGB	02	1642	1645	1712	N12	W20	.452		1.2	30	SN	3	C	1645	110	1.2	
BIGB	02	1759	1902	1923	S18	W25	.456		31.9	84	SN	3	C	1802	80	.9	
BIGB	02	1820	1853	1930	S15	W59	.853		29.3	70	1B	3	C	1853	140	2.8	
PALE	02	1949E	1949U	2004D	S14	W43	.682		30.6	15D	SF	1	C		50		
PALE	02	2003E	2010U	2017D	S13	W24	.417		1.0	14D	SN	1	C		40		
BIGB	02	2030	2046	2111	S15	W59	.853		29.4	41	SN	3	C	2046	90	1.8	
BIGB	02	2030	2038	2111	S13	W10	.209		2.1	41	SN	3	C	2038	120	1.3	
PALE	02	2043E	2044U	2117D	S10	E87	.998		9.4	34D	1B	1	C		0		
PALE	02	2054E	2054U	2104D	S14	W29	.494		31.7	10D	SN	1	C		50		
PALE	02	2114E	2114U	2124D	S13	W23	.402		1.2	10D	1N	1	C		250		
BIGB	02	2219	2221	2347	S17	E08	.232		3.5	88	SN	3	C	2221	180	1.9	
BIGB	02	2350	2353	0028D	S13	E31	.520		5.3	38D	1F	3	P	2353	200	2.4	
LEAR	03	0002E	0009	0050	S20	E01	.240		3.1	48	SN	3	C		125		
LEAR	03	0103E	0126U	0446	S15	W29	.497		31.9	223	2B	3	C		550		
MANI	03	0105E	0106	0158D	S17	W29	.505		31.9	53D	SN	3	C		80		
MANI	03	0105E	0118U	0158D	S17	W29	.505		31.9	53D	2B	1	V		520	6.2	F
MANI	03	0105E	0106	0158D	S17	W29	.505		31.9	53D	SN	1	V		80	1.0	F
PALE	03	0111E	0149U	0303D	S15	W27	.469		1.0	112D	2B	1	C		550		
YUNN	03	0121E	0125	0140	N10	W22	.457		1.4	19	SN		P		157	1.8	
YUNN	03	0121E	0124	0140D	S15	W30	.511		31.8	19D	3B		P		1100	13.2	FZT
PALE	03	0122E	0149U	0301D	S10	W40	.640		31.1	99D	SN	1	C		65		
MANI	03	0135E	0135U	0158D	S12	W38	.615		31.2	23D	SN	1	V		50	.6	
MANI	03	0135E	0135U	0158D	S12	W38	.615		31.2	23D	SN	3	C		50		
LEAR	03	0416	0420	0507	N11	W26	.516		1.2	51	SN	3	C		147		
YUNN	03	0525	0540	0620	S06	E86	.997		9.7	55	SF		P		0		AG
YUNN	03	0536	0541	0611	S12	W14	.259		2.2	35	SF		C		47	.5	DT
MANI	03	0545E	0545U	0602D	S16	W09	.229		2.6	17D	SN	3	C		15		
MANI	03	0545E	0545U	0602D	S16	W09	.229		2.6	17D	SN	1	V		15	.2	
YUNN	03	0629E	0634	0649	S15	W25	.440		1.4	20	SN		P		79	.9	DT
LEAR	03	0629	0632	0700	S15	W26	.454		1.3	31	SB	3	C		58		
MANI	03	0632E	0633	0639D	S13	W15	.281		2.1	7D	SN	3	C		60		
MANI	03	0632E	0633	0639D	S13	W15	.281		2.1	7D	SN	1	V		60	.7	
YUNN	03	0634	0640	0707	S12	W14	.259		2.2	33	SN		C		126	1.3	T
ATHN	03	0635	0637	0720	S13	W22	.386		1.6	45	SN	2	C		175		
YUNN	03	0705	0708	0716	S13	W65	.901		29.4	11	1B		C		157	3.7	D
LEAR	03	0705	0706	0716	S13	W64	.894		29.5	11	SB	3	C		35		D

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	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ATHN	03	0706	0708	0733	S13	W63	.886		29.6	27	SN	2	C		80		
MANI	03	0707E	0707U	0711D	S13	W63	.886		29.6	4D	SN	1	V		30	.6	
MANI	03	0707E	0707U	0711D	S13	W63	.886		29.6	4D	SN	3	C		30		
LEAR	03	0815	0822	0908	N12	W36	.645		31.6	53	SN	3	C		111		
WEND	03	0816E	0824	0829D	N15	W36	.662		31.6	13D	SN		C	0824	138	1.8	E
YUNN	03	0817E	0821	0837	N13	W36	.650		31.6	20	1N		P		157	2.1	
ATHN	03	0819	0821	0845	N12	W29	.560		1.2	26	SB	2	C		64		
MANI	03	0821E	0822	0832D	N12	W33	.609		31.9	11D	SN	1	V		75	1.0	F
MANI	03	0821E	0822	0832D	N12	W33	.609		31.9	11D	SN	3	C		75		
YUNN	03	0833	0837	0848	S15	E03	.162		3.6	15	SN		C		189	2.0	FG
YUNN	03	0841	0845	0847	S15	W32	.539		1.0	6	SN		C		79	1.0	D
HTPR	03	0908E		0911D	S09	E90	1.000		10.1	3D	SF		C	0911	30		
HTPR	03	0908E		0911D	N09	W20	.423		1.9	3D	SF		C	0911	30	.3	E
WEND	03	0909	0912	0914	N09	W13	.341		2.4	5	SF		C	0912	44	.5	
ATHN	03	0909	0911	0949	S05	E89	1.000		10.1	40	SB	3	C		0		D
WEND	03	0929	0935	1006	S07	E42	.665		6.5	37	SN		C	0935	131	1.8	
WEND	03	0930	0935	0941	N11	W29	.553		1.2	11	SF		C	0935	56	.7	
ATHN	03	0931	0933	0954	S07	E43	.678		6.6	23	SB	2	C		64		
YUNN	03	0933	0941	0954	N12	W29	.560		1.2	21	SN		C		31	.4	F
YUNN	03	0933	0942	1001	S06	E40	.640		6.4	28	SN		C		94	1.3	F
LEAR	03	0936E	0936U	1002	N11	W28	.541		1.3	26	SF	3	C		42		
LEAR	03	0936E	0936U	1003	S06	E41	.653		6.5	27	SB	3	C		149		
YUNN	03	0949	1001	1001D	S11	W45	.704		31.0	12D	SN		P		31	.5	D
WEND	03	1047	1050	1056	S14	W26	.450		1.5	9	SF		C	1050	44	.5	
ATHN	03	1155	1157	1214	S18	E08	.245		4.1	19	SN	2	C		48		
WEND	03	1241	1244	1254	N14	E09	.375		4.2	13	SN		C	1244	75	.8	
WEND	03	1319	1322	1328	N14	W78	.985		28.7	9	SN		C	1322	31		
BIGB	03	1649	1652	1727	S18	W22	.415		2.1	38	SB	3	C	1652	180	2.0	
HOLL	03	1731	1921	2025	S07	E35	.570		6.4	174	SF	3	C		70		
BIGB	03	1746	1753	1827	S12	E90	1.000		10.5	41	1N	3	C	1753	100		
HOLL	03	1947	2044	2200D	S11	E91	1.000		10.6	133D	1B	3	C		0		
HOLL	03	1948	1952	1959	N12	W46	.757		31.4	11	SF	3	C		22		
HOLL	03	1956	1957	2001	S13	W32	.534		1.4	5	SN	3	C		44		
HOLL	03	1958	2003	2033	S21	E05	.269		4.2	35	SF	3	C		71		
HOLL	03	2006	2010	2016	S13	W32	.534		1.4	10	SN	3	C		35		
HOLL	03	2011	2012	2020	N05	W20	.389		2.3	9	SF	3	C		21		
HOLL	03	2031	2044	2202	S06	E34	.556		6.4	91	SN	3	C		139		
HOLL	03	2036	2115	2220	S14	W30	.508		1.6	104	1B	3	C		399		
HOLL	03	2038	2045	2048	S10	W50	.762		31.1	10	SF	3	C		20		
BIGB	03	2039	2044	2109	S12	E90	1.000		10.6	30	1N	3	C	2044	110		
BIGB	03	2104	2119	2159	S12	W24	.413		2.1	55	SB	3	C	2119	130	1.5	
HOLL	03	2234	2330	2351D	S11	E79	.978		9.9	77D	SF	3	C		0		
PALE	03	2346E	2346U	0042D	S18	W00	.205		4.0	56D	SN	1	C		100		
YUNN	04	0038	0044U	0044D	S11	E79	.978		10.0	6D	1B		P	0044	157		A
MANI	04	0042E	0043	0046D	S10	E82	.988		10.2	4D	1B	1	V		0		
YUNN	04	0300	0301	0308	S16	W08	.217		3.5	8	SN		C		47	.5	E
PEKG	04	0328	0332	0345	S11	W56	.824		30.9	17	SF		C	0332	84	1.5	E
YUNN	04	0329	0335	0355	S12	W56	.824		30.9	26	SF		C		16	.3	D
YUNN	04	0330	0331	0336	S13	W39	.629		1.2	6	SN		C		31	.4	D
YUNN	04	0346	0347	0349D	S17	W03	.194		3.9	3D	SF		P		31	.3	
YUNN	04	0425E	0425U	0441	N07	W23	.446		2.5	16	SN		P	0425	47	.5	D
YUNN	04	0427	0430	0441	S12	E01	.102		4.3	14	SN		C		31	.3	D
PEKG	04	0500	0510	0520	S11	W39	.627		1.3	20	SN		C	0510	71	.9	E
PEKG	04	0500	0510	0527	S19	W03	.227		4.0	27	SF		C	0510	59	.6	D
YUNN	04	0501	0503	0508	S14	W35	.578		1.6	7	SN		C		79	1.0	D
YUNN	04	0506	0509	0525	S12	W39	.628		1.3	19	SN		C		94	1.2	E
PEKG	04	0520	0532	0540	S13	W46	.717		31.8	20	SF		P	0532	55	.8	E
PEKG	04	0555	0608	0645	S19	W03	.227		4.0	50	1N		C	0608	210	2.2	E
YUNN	04	0602	0613	0645	S18	W03	.210		4.0	43	1N		C		220	2.3	F
PEKG	04	0633	0635	0640	S13	W38	.616		1.4	7	SN		C	0635	71	.9	D
YUNN	04	0635	0636	0641	S14	W39	.631		1.3	6	SN		C		63	.8	D
YUNN	04	0820	0825	0841	S18	W03	.210		4.1	21	SN		P		79	.8	
YUNN	04	0829	0836	0904	S17	W44	.699		1.1	35	SN		C		47	.7	D
WEND	04	0852E		0905	S14	W30	.508		2.1	13	SF		C	0852	38	.5	
YUNN	04	0853E	0853U	0910	S14	W31	.522		2.0	17	SN		P	0853	141	1.7	
YUNN	04	0920	0927	0933D	S20	W05	.252		4.0	13D	SN		P		79	.8	F
WEND	04	0923	0933	0942	S12	W39	.628		1.5	19	SF		C	0933	63	.8	
YUNN	04	0924E	0927	0933D	S12	W43	.679		1.2	9D	SF		P		126	1.8	E
WEND	04	1027	1029	1044	S12	E76	.966		10.1	17	SF		C	1029	25		
WEND	04	1115	1120	1124	S12	W31	.517		2.1	9	SF		C	1120	25	.3	
MONT	04	1116	1118	1124	S13	W31	.519		2.1	8	SF		C	1118	50		E

Hα SOLAR FLARES

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
WEND	04	1139	1142	1147	S14	W31	.522		2.2	8	SN		C	1142	69	.9	
WEND	04	1322	1334	1400	S15	W31	.525		2.2	38	SN		C	1334	150	1.9	
WEND	04	1326	1335	1352	S19	W07	.250		4.0	26	1N		C	1335	450	4.9	I
WEND	04	1435	1439	1446	S13	E74	.957		10.2	11	SF		C	1439	19		
WEND	04	1527	1530	1543	N07	W28	.514		2.5	16	SF		C	1530	63	.7	E
WEND	04	1540	1543	1558	S12	W34	.560		2.1	18	1B		C	1543	181	2.3	
BIGB	04	1542E	1543	1608	S12	W34	.560		2.1	26	1B	3	P	1543	260	3.2	
BIGB	04	1850	1857	2023	S18	W51	.778		1.0	93	1B	3	C	1857	180	2.9	
BIGB	04	2038	2041	2113	S16	W44	.697		1.6	35	SN	3	C	2041	120	1.7	
MANI	05	0034E	0034U	0043D	N10	W50	.792		1.3	9D	SN	1	V		80	1.3	F
PEKG	05	0110	0111	0114	S15	W39	.633		2.1	4	SN		C	0111	50	.7	D
PEKG	05	0130	0131	0140	S14	W46	.718		1.6	10	SB		P	0131	76	1.1	E
YUNN	05	0137E	0138U	0150	S14	W46	.718		1.6	13	SN		P	0138	47	.7	E
MANI	05	0149E	0149U	0152D	S12	E68	.922		10.2	3D	SN	1	V		40	.9	
YUNN	05	0150	0153	0158	S12	E69	.929		10.3	8	SN		C		31		D
PEKG	05	0150	0152	0155	S12	E72	.946		10.5	5	SB		C	0152	34		D
YUNN	05	0153	0202	0220	N11	W80	.989		30.1	27	SF		C		0		AG
PEKG	05	0206	0220	0250	S16	W41	.660		2.0	44	SN		C	0220	80	1.1	E
YUNN	05	0209E	0218	0240	S16	W41	.660		2.0	31	SB		P	0222	126	1.7	F
MANI	05	0216E	0216U	0228D	S16	W41	.660		2.0	12D	SN	1	V		60	.8	F
YUNN	05	0226	0235	0245D	N17	W22	.528		3.5	19D	SN		P		157	1.9	
PEKG	05	0233	0237	0245	N16	W23	.528		3.4	12	SN		C	0237	147	1.8	F
YUNN	05	0243	0245U	0245D	S17	W14	.299		4.1	2D	SN		P	0245	47	.5	
PEKG	05	0250E	0251	0254	S07	W57	.835		31.8	4	SN		P	0251	29	.6	D
PEKG	05	0251E	0251	0255	S18	W15	.321		4.0	4	SN		P	0251	84	.9	E
YUNN	05	0315E	0316	0323	S10	E66	.909		10.1	8	1F		P		79		E
YUNN	05	0315E	0317	0325	S15	W47	.730		1.6	10	SN		P		47	.7	E
PEKG	05	0317E	0317	0319	S12	E68	.922		10.2	2	SF		P	0317	50		E
PEKG	05	0317E	0317	0320	S15	W48	.742		1.5	3	SN		P	0317	25	.4	D
PEKG	05	0446	0449	0500	N17	W29	.601		3.0	14	SN		C	0449	42	.5	D
PEKG	05	0450	0500	0525	N16	W24	.538		3.4	35	1N		C	0500	193	2.4	E
PEKG	05	0454E	0454	0459	S12	E65	.901		10.1	5	SF		P	0454	17	.4	D
PEKG	05	0500	0505	0510	S07	E69	.930		10.4	10	SF		C	0505	55		E
PEKG	05	0506	0507	0540	S02	E90	1.000		12.0	34	2B		C	0507	0		A
PEKG	05	0605	0610	0615	S13	E64	.893		10.1	10	SB		C	0610	63	1.5	D
PEKG	05	0606	0610	0612	S14	W49	.752		1.6	6	SF		P	0610	63	1.0	E
PEKG	05	0740E	0740	0750	S13	E66	.908		10.3	10	SN		C	0740	55		E
MONT	05	0902	0907	0944	S15	W43	.683		2.2	42	1B		C	0907	400		
WEND	05	0904	0907	0953	S14	W44	.694		2.1	49	1B		C	0907	288	4.3	
BUCA	05	0905		0945	S15	W43	.683		2.2	40	1B		V		0		
MONT	05	0907	0911	0919	S06	E74	.959		10.9	12	SF		C	0911	50		D
HTPR	05	0941E		1010	S14	W45	.706		2.0	29	SB		C	0945	30	.4	
HTPR	05	0956	1002	1013	N09	W57	.856		1.1	17	SF		C	1002	20	.4	
WEND	05	0959	1004	1023	N11	W55	.842		1.3	24	SF		C	1004	63	1.1	
MONT	05	0959	1003	1014	N10	W56	.849		1.2	15	SF		C	1003	70		E
HTPR	05	1000	1004	1035	N11	W61	.892		31.8	35	SF		C	1004	30	.6	
MONT	05	1045	1047	1050	S06	E74	.959		11.0	5	SN		C	1047	70		
WEND	05	1046	1048	1054	S10	E75	.962		11.1	8	SN		C	1048	75		
HTPR	05	1046	1048	1052	S05	E80	.983		11.4	6	1B		C	1048	100		
WEND	05	1052	1058	1117	S13	E62	.878		10.1	25	SN		C	1058	81	1.8	
MONT	05	1053	1057	1104	S13	E64	.893		10.3	11	SN		C	1057	150		
HTPR	05	1054	1058	1120	S11	E70	.935		10.7	26	SF		C	1058	80	1.9	
HTPR	05	1056	1057	1110	S19	E50	.769		9.2	14	SN		C	1057	40	.7	E
WEND	05	1056	1058	1104	S18	E44	.700		8.8	8	SF		C	1058	38	.6	
HTPR	05	1127	1129	1147	S19	W23	.434		3.8	20	SF		C	1129	20	.2	
WEND	05	1152	1201	1220	S19	W21	.408		3.9	28	SF		C	1201	138	1.6	
HTPR	05	1153	1159	1345	S19	W23	.434		3.8	112	1N		C	1230	250	2.7	EK
HTPR	05	1154	1154	1157	S05	E80	.983		11.5	3	SF		C	1154	30		
WEND	05	1225	1234	1324	S18	W23	.427		3.8	59	1N		C	1234	281	3.3	
HTPR	05	1304	1310	1314	S15	W48	.742		1.9	10	SF		C	1310	20	.3	
HTPR	05	1305	1317	1328	S06	E69	.931		10.7	23	SF		C	1317	10	.2	
HTPR	05	1307	1308	1312	S07	E62	.879		10.2	5	SF		C	1308	20	.4	
HTPR	05	1310	1313	1345	N16	W61	.901		1.0	35	SB		C	1313	80	1.6	E
WEND	05	1310	1312	1322	N16	W25	.549		3.7	12	SF		C	1312	56	.7	
HTPR	05	1409		1436D	S18	W58	.845		1.2	27D	SF		C	1421	20	.4	E
HTPR	05	1414		1436D	N15	W23	.518		3.9	22D	SF		C	1416	20	.2	E
HTPR	05	1441E		1453	S13	W48	.740		2.0	12	SF		C	1448	30	.5	
WEND	05	1454	1456	1506	N11	W44	.732		2.3	12	SF		C	1456	75	1.1	
HTPR	05	1526		1531D	N16	W23	.528		3.9	5D	SF		C	1531	20	.2	
BIGB	05	1751	1756	1812	S07	E75	.963		11.4	21	1N	2	C	1756	90		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PEKG	06	0120	0126	0150	S10	E67	.916		11.1	30	SF		P	0126	84		D
MANI	06	0125E	0125U	0131D	S10	E67	.916		11.1	6D	SF	1	V		20	.4	
PEKG	06	0132	0134	0142	S11	E53	.794		10.0	10	SF		P	0134	50	.8	D
PEKG	06	0215	0224U	0245	S16	W32	.542		3.7	30	SF		C	0224	97	1.2	D
PURP	06	0318E	0318	0325	S08	E66	.910		11.1	7	SN		P	0318	40		D
PEKG	06	0325E	0326	0337D	S07	E67	.917		11.2	12D	SN		P	0326	63		E
PEKG	06	0358	0359	0400	S12	E52	.783		10.1	2	SN		C	0359	59	1.0	D
PEKG	06	0418	0421	0429	S12	E52	.783		10.1	11	SF		C	0421	67	1.1	E
PEKG	06	0425	0434	0438	S04	W34	.558		3.6	13	SF		C	0434	101	1.2	D
PEKG	06	0425	0427	0438	S07	W31	.512		3.9	13	SF		C	0427	105	1.2	DK
PEKG	06	0427E	0434	0440	S07	E52	.784		10.1	13	SN		P	0434	46	.8	D
PEKG	06	0427E	0427	0440	S07	E51	.773		10.0	13	SF		P	0427	113	1.9	EK
PURP	06	0430	0432	0448	S07	E52	.784		10.1	18	SF		C	0432	92	1.5	E
PEKG	06	0505	0510	0517D	S09	E66	.909		11.2	12D	SN		P	0510	63		D
MANI	06	0526E	0526U	0530D	S12	E52	.783		10.1	4D	SF	1	V		50	.8	
HTPR	06	1008		1023D	N16	W43	.744		3.2	15D	SN		C	1011	80	1.1	E
RAMY	06	1442	1534	1605	S11	E48	.739		10.2	83	2B	3	C		419		
RAMY	06	1720	1731	1848	S12	E46	.716		10.2	88	1B	3	C		311		
RAMY	06	1750	1752	1833	S13	W61	.869		2.2	43	SF	3	C		15		
BIGB	06	1753	1757	1820	S07	E60	.862		11.2	27	1N	3	C	1757	140	2.9	
BIGB	06	1817	1819	1857	S13	E40	.642		9.8	40	SN	3	C	1819	100	1.3	
PALE	06	1840E	1840U	1922D	S12	E39	.628		9.7	42D	SB	2	C		75		
RAMY	06	1928	1950	1951D	S14	E38	.617		9.7	23D	SB	3	C		117		
PALE	06	1929E	1929U	1929D	S08	E56	.825		11.0		SN	2	C		60		
PALE	06	1931E	1931U	1931D	S18	W39	.640		3.9		SF	2	C		35		
BIGB	06	1948	1952	2059	S13	E40	.642		9.8	71	SN	3	C	1953	120	1.6	
RAMY	06	2050	2100	2122D	S15	W63	.886		2.1	32D	2B	3	C		453		
RAMY	06	2050	2101	2122	S14	E38	.617		9.7	32	1B	3	C		244		
BIGB	06	2051	2057	2157	S16	W64	.893		2.1	66	1N	3	C	2057	160	3.7	
LEAR	06	2355	2359	0039	S16	W80	.981		1.0	44	1N	3	C		0		
YUNN	07	0107E	0114	0127	S21	W38	.637		4.2	20	1F		P		220	2.9	
YUNN	07	0107E	0114	0127	S07	W45	.703		3.7	20	SN		P		31	.5	D
YUNN	07	0207	0217	0256	S20	W37	.621		4.3	49	1B		C		252	3.3	F
YUNN	07	0323	0326	0343	S13	W65	.901		2.3	20	1F		C		94	2.2	
YUNN	07	0332E	0334	0350	S19	E34	.579		9.7	18	SN		P		79	1.0	D
YUNN	07	0339	0343U	0347	S06	W48	.740		3.6	8	SF		P	0343	31	.5	
YUNN	07	0351	0353U	0353D	S21	W38	.637		4.3	2D	SN		P	0353	110	1.5	F
YUNN	07	0354	0358	0403	S05	W43	.679		3.9	9	SN		C		63	.9	
YUNN	07	0358E	0358	0358D	S20	W39	.645		4.2		SN		C		110	1.5	E
YUNN	07	0404E	0404	0409	S19	W40	.654		4.2	5	SN		C		16	.2	K
YUNN	07	0452E	0511	0530	S14	E34	.563		9.8	38	SN		P	0513	126	1.6	
PEKG	07	0454	0505	0540	S14	E33	.549		9.7	46	1N		P	0505	227	2.8	E
PEKG	07	0500	0544	0551	S20	W42	.681		4.1	51	1N		P	0544	252	3.6	F
PEKG	07	0500	0511	0551	S18	W43	.688		4.0	51	1N		P	0511	206	2.9	FKU
YUNN	07	0512E	0516	0516D	S18	W44	.700		3.9	4D	SN		P		94	1.4	E
YUNN	07	0545E	0545	0600	S22	W39	.652		4.3	15	SN		C		63	.8	FK
ISTA	07	0744		0824	S14	E34	.563		9.9	40	SN				0		E
BUCA	07	0750	0758	0823	S13	E33	.547		9.8	33	1N		C	0758	215	2.6	E
YUNN	07	0803E	0807U	0831	S13	E33	.547		9.8	28	1B		P	0807	362	4.4	F
HTPR	07	0918	0923	0933	S15	W80	.981		1.4	15	SF		C	0923	20		
YUNN	07	0919	0923U	0939	S16	W76	.965		1.7	20	1N		P	0923	79		D
HTPR	07	1024	1026	1031	N14	W49	.796		3.8	7	SF		C	1026	40	.6	E
HTPR	07	1038	1043	1055	S13	E41	.655		10.5	17	SB		C	1043	70	.9	E
HTPR	07	1115	1120	1130	S06	E38	.613		10.3	15	SF		C	1120	30	.4	
HTPR	07	1140	1142	1147	S21	W44	.707		4.2	7	SN		C	1142	100	1.4	E
HTPR	07	1230	1236	1245	N15	W51	.818		3.7	15	SF		C	1236	20	.3	
HTPR	07	1251	1304	1337	S14	W71	.940		2.2	46	1B		C	1304	120		
HTPR	07	1339	1341	1400	S13	E32	.533		10.0	21	SN		C	1341	80	.9	E
HTPR	07	1423	1424	1430	S13	E31	.518		9.9	7	SF		C	1424	20	.2	
HTPR	07	1444	1448	1454	S13	E31	.518		9.9	10	SF		C	1448	60	.7	E
LEAR	08	0028	0149	0222D	S11	E32	.529		10.4	114D	1B	3	C		300		
PEKG	08	0039E	0039	0104D	S13	E22	.385		9.7	25D	SN		P	0039	97	1.1	EK
PEKG	08	0039E	0057	0104D	S13	E21	.370		9.6	25D	SN		P	0057	113	1.2	E
PEKG	08	0110E	0119U	0200D	S11	E29	.485		10.2	50D	1N		P	0119	260	3.1	F
YUNN	08	0147E	0149	0159	S08	E31	.512		10.4	12	1B		P		189	2.3	F
YUNN	08	0149	0151	0210	N03	E36	.604		10.8	21	SF		C		47	.6	EG
LEAR	08	0235	0243	0251	S09	E27	.452		10.1	16	1B	3	C		257		
PEKG	08	0240	0243U	0249D	S07	E27	.451		10.1	9D	1B		P	0243	359	4.2	F
LEAR	08	0333	0333	0342	S09	E26	.437		10.1	9	SF	3	C		43		
PEKG	08	0418E	0418U	0421	S11	E28	.470		10.3	3	SN		P	0418	42	.5	D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION — MIN.	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			CONC.	TYPE	TIME — UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PEKG	08	0426	0427	0432	S12	E28	.472		10.3	6	SN		C	0427	34	.4	D
PEKG	08	0518	0519	0522	S10	E16	.279		9.4	4	SF		P	0519	21	.2	D
PEKG	08	0605E	0618	0620	S04	W62	.881		3.6	15	SF		P	0618	55	1.2	E
PEKG	08	0605E	0605	0620	S04	W62	.881		3.6	15	SF		P	0605	42	.9	DK
ISTA	08	0646		0701	S06	E21	.356		9.9	15	1N				0		E
PEKG	08	0651	0656	0702	S07	E24	.404		10.1	11	SB		C	0656	181	2.0	ET
ISTA	08	0715		0720	S06	E21	.356		9.9	5	1N				0		E
PEKG	08	0717E	0719	0722	S07	E23	.388		10.0	5	SN		P	0719	101	1.1	E
ISTA	08	0754		0759	N18	E85	.999		14.7	5	SF				0		A
ISTA	08	0756		0817	S06	E21	.356		9.9	21	1B				0		F
YUNN	08	0808E	0810	0819	S06	E23	.389		10.1	11	1N		P		424	4.8	F
YUNN	08	0813	0815U	0819D	S05	E39	.627		11.3	6D	SN		P	0815	94	1.2	
ISTA	08	0815		0824	S08	E40	.639		11.3	9	SF				0		E
ISTA	08	0822		0827	S11	E15	.267		9.5	5	SF				0		D
LEAR	08	0955	0958	1007	S05	W63	.888		3.7	12	SF	3	C		22		
ATHN	08	1028	1030	1048	S12	E21	.366		10.0	20	SB	3	C		159		
RAMY	08	1204	1251	1316D	N15	W88	1.000		1.9	72D	1B	3	C		0		
ATHN	08	1250	1252	1319	S13	W88	.998		1.9	29	1B	3	C		111		
RAMY	08	2016	2027	2052D	S08	E28	.467		10.9	36D	2B	3	C		492		
BIGB	08	2030E	2030	2049D	S06	E30	.497		11.1	19D	1N	2	P	2030	210	2.5	
PEKG	09	0043	0046	0101	S07	E16	.274		10.2	18	SB		C	0046	189	2.0	E
PEKG	09	0107	0110	0111	S13	E11	.218		9.9	4	SN		C	0110	109	1.2	E
PEKG	09	0107	0111	0121	S07	E18	.307		10.4	14	SB		C	0111	160	1.7	E
MANI	09	0119E	0119U	0125D	S05	E16	.275		10.3	6D	SN	3	C		20		
MANI	09	0119E	0119U	0125D	S05	E16	.275		10.3	6D	SN	1	V		20	.2	
PEKG	09	0140	0142	0202	S11	E16	.283		10.3	22	1N		C	0142	227	2.4	EU
MANI	09	0143E	0145U	0153D	S11	E16	.283		10.3	10D	SN	1	V		35	.4	F
MANI	09	0143E	0145U	0153D	S11	E16	.283		10.3	10D	SN	3	C		35		
PEKG	09	0336E	0341	0359	S12	E04	.117		9.4	23	2N		P	0341	505	5.2	F
MANI	09	0338E	0339	0352	S13	E06	.152		9.6	14	1B	3	C		275		
MANI	09	0338E	0339	0352	S13	E06	.152		9.6	14	1B	1	V		275	2.9	FU
PEKG	09	0410E	0438	0529	S12	W90	1.000		2.4	79	1B		C	0438	105		AE
ISTA	09	0634		0651	S06	E14	.241		10.3	17	SF				0		D
PEKG	09	0641E	0641	0704D	S05	E15	.259		10.4	23D	SN		P	0641	46	.5	DKT
PEKG	09	0641E	0703	0704D	S06	E13	.224		10.3	23D	SF		P	0703	126	1.3	E
ISTA	09	0643		0650	S07	E14	.240		10.3	7	SN				0		E
ISTA	09	0656		0709	S12	E12	.226		10.2	13	SN				0		E
ISTA	09	0700		0708	S07	E11	.190		10.1	8	SN				0		E
ISTA	09	0711	0712	0727	S07	E11	.190		10.1	16	1B				0		F
PEKG	09	0712	0713	0738	S06	E12	.207		10.2	26	1F		C	0713	244	2.6	FK
PEKG	09	0712	0725	0738	S06	E11	.190		10.1	26	SF		C	0725	168	1.8	E
MANI	09	0716E	0718U	0728D	S05	E15	.259		10.4	12D	SN	3	C		60		
MANI	09	0716E	0718U	0728D	S05	E15	.259		10.4	12D	SN	1	V		60	.6	F
ISTA	09	0807		0822	S12	E00	.095		9.3	15	SN				0		E
PEKG	09	0807E	0812	0822	S12	E00	.095		9.3	15	SF		P	0812	42	.4	E
HTPR	09	1044	1047	1117	S05	E24	.406		11.2	33	SF		C	1047	30	.3	
HTPR	09	1103	1113	1130	S12	W01	.097		9.4	27	2N		C	1113	700	7.0	E
MONT	09	1106E	1112	1112D	S13	W01	.114		9.4	6D	1B		C	1112	350		
HTPR	09	1126	1128	1146	S06	W49	.751		5.8	20	SF		C	1128	20	.3	
HTPR	09	1158	1210	1255	S12	E11	.211		10.3	57	SF		C	1210	40	.4	
HTPR	09	1230	1237	1247	S09	E13	.227		10.5	17	SF		C	1237	30	.3	
HTPR	09	1330	1342	1403	S05	E20	.341		11.1	33	SN		C	1342	20	.2	
HTPR	09	1355	1356	1423	S12	E11	.211		10.4	28	SN		C	1356	40	.4	E
HTPR	09	1355	1356	1410	S10	E06	.120		10.0	15	SF		C	1356	20	.2	
HTPR	09	1401	1409	1425	N13	W87	1.000		3.1	24	SF		C	1409	30		
BIGB	09	1631	1636	1651	S12	E02	.101		9.8	20	SF	2	C	1636	70	.7	
PURP	10	0027	0228	0234	S14	E01	.130		10.1	127	SN		C	0228	92	1.0	
MANI	10	0056E	0105	0127D	N16	E54	.848		14.1	31D	3B	3	C		700		
MANI	10	0056E	0105	0127D	N16	E54	.848		14.1	31D	3B	1	V		700	13.0	ZU
PEKG	10	0057E	0101	0140	N17	E54	.851		14.1	43	2B		C	0101	568	11.5	U
PALE	10	0103E	0103U	0137D	N18	E56	.870		14.2	34D	3B	2	C		860		
LEAR	10	0104	0108	0215	N16	E54	.848		14.1	71	2B	3	C		740		
LEAR	10	0228	0228	0238	S14	E01	.130		10.2	10	SB	3	C		127		
LEAR	10	0308	0309	0323	S20	W83	.988		3.9	15	SN	3	C		0		
PEKG	10	0515	0523	0535	S10	E32	.527		12.6	20	SN		P	0523	29	.4	D
LEAR	10	0807	0809	0816	S12	W05	.128		10.0	9	SN	3	C		62		
UPIC	10	0840	0850U	0900	S11	W07	.143		9.8	20	SF		P	0850	143		E
LEAR	10	0846	0852	0900	S11	W08	.157		9.8	14	SN	3	C		135		
WEND	10	0846	0852	0859	S12	W07	.153		9.8	13	SF		C	0852	50	.5	
HTPR	10	0850E		0905	S11	W08	.157		9.8	15	SN		C	0851	180	1.8	E

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OBSERV-ATORY	OBSERVED UT				LOCATION				CMP. DAY	DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION				COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MONT	10	0853E	0853	0858	S11	W10	.188		9.6	5	SN		C	0853	150		
HTPR	10	0918	0925	1005	S09	E04	.081		10.7	47	SN		C	0925	100	1.0	
HTPR	10	0942	0945	0957	S10	E15	.263		11.5	15	SB		C	0945	160	1.6	E
MONT	10	0942	0945	0959	S10	E15	.263		11.5	17	SN		C	0945	70		D
WEND	10	0943	0945	0957	S11	E16	.283		11.6	14	SN		C	0945	44	.5	
LEAR	10	0943	0946	1001	S11	E14	.251		11.5	18	SN	3	C		165		
HTPR	10	1047	1050	1140	S04	W02	.057		10.3	53	SF		C	1050	20	.2	
HTPR	10	1114	1122	1124	S10	E14	.246		11.5	10	SF		C	1122	50	.5	
RAMY	10	1157E	1222	1243	S20	W08	.267		9.9	46	SF	3	C		62		
RAMY	10	1208	1412	1500	S11	W11	.203		9.7	172	SN	3	C		121		
HTPR	10	1212		1214D	S07	E11	.190		11.3	2D	SF		C	1213	.40	.4	
HTPR	10	1248	1248	1251	S14	E38	.617		13.4	3	SF		C	1248	50	.6	
UPIC	10	1250	1305	1315	S11	E01	.079		10.6	25	SF		P	1305	102		
HTPR	10	1253	1253	1258	S07	E12	.207		11.4	5	SN		C	1253	30	.3	
HTPR	10	1256	1259	1410	S09	E01	.046		10.6	74	SN		C	1259	150	1.5	E
HTPR	10	1305	1313	1315	S14	E38	.617		13.4	10	SF		C	1313	40	.5	
HTPR	10	1311	1313	1326	S07	E12	.207		11.4	15	SF		C	1313	80	.8	
HTPR	10	1312	1325	1327	S10	E13	.230		11.5	15	SN		C	1325	110	1.1	E
RAMY	10	1325	1325	1342	S12	E12	.225		11.5	17	SN	3	C		57		
WEND	10	1325	1325	1327	S11	E13	.235		11.5	2	SF		C	1325	25	.3	
HTPR	10	1329	1331	1335	S14	E38	.617		13.4	6	SF		C	1331	50	.6	
HTPR	10	1332	1333	1342	S10	E13	.230		11.5	10	SF		C	1333	30	.3	
HTPR	10	1334	1337	1340	S08	E12	.208		11.5	6	SN		C	1337	50	.5	
HTPR	10	1339	1344	1358	S10	W15	.263		9.4	19	SF		C	1344	20	.2	
HTPR	10	1407	1415	1445	S12	W11	.210		9.8	38	SB		C	1415	180	1.8	E
HTPR	10	1412	1413	1430	S18	W05	.215		10.2	18	SF		C	1413	30	.3	
WEND	10	1413	1416	1428	S10	W10	.182		9.8	15	SF		C	1416	81	.9	
HTPR	10	1428	1433	1450	S09	W01	.046		10.5	22	SF		C	1433	30	.3	
RAMY	10	1511	1603	1613	S09	W13	.227		9.7	62	SF	3	C		26		
HTPR	10	1512	1516	1520	S07	E09	.156		11.3	8	SF		C	1516	30	.3	
HTPR	10	1523	1526	1529	S10	E10	.182		11.4	6	SF		C	1526	30	.3	E
HTPR	10	1529	1534	1543	S14	E06	.165		11.1	14	SF		C	1534	20	.2	
RAMY	10	1600	1604	1627	S12	E10	.195		11.4	27	SB	3	C		133		
HOLL	10	1602	1603	1619D	S11	E10	.188		11.4	17D	SB	3	C		83		
RAMY	10	1603	1604	1610	S15	E10	.224		11.4	7	SN	3	C		75		
HTPR	10	1606E		1613D	S07	E10	.173		11.4	7D	SF		C	1609	60	.6	E
HTPR	10	1606E		1613D	S10	E11	.198		11.5	7D	SF		C	1606	60	.6	E
RAMY	10	1610	1611	1615	S20	W10	.285		9.9	5	SF	3	C		22		
RAMY	10	1648	1654	1704	S10	W02	.069		10.5	16	SN	3	C		46		
RAMY	10	1711	1713	1721	S08	E08	.140		11.3	10	SF	3	C		28		
RAMY	10	1748	1749	1805	S11	W11	.203		9.9	17	SF	3	C		46		
HOLL	10	1816	1859	2029	S14	W12	.241		9.9	133	2B	3	C		551		D
RAMY	10	1818	1827	1836	S09	W14	.243		9.7	18	SF	3	C		45		
RAMY	10	1838	1839	1845	S11	E32	.529		13.2	7	SF	3	C		22		
RAMY	10	1839	1853	1951	S12	W13	.241		9.8	72	2B	3	C		699		
HOLL	10	1844E	1849	1849D	S14	W12	.241		9.9	5D	1N	3	C		403		
HOLL	10	1847	1848	1901	S07	W64	.895		6.0	14	SF	3	C		25		
RAMY	10	1850	1854	1921	S19	W15	.328		9.7	31	SF	3	C		64		
HOLL	10	1851	1853	1902	S13	E03	.123		11.0	11	SN	3	C		41		
RAMY	10	1852	1853	1905	S13	E02	.117		10.9	13	SN	3	C		36		
PALE	10	1853E	1853U	1909D	S12	W13	.241		9.8	16D	1B	1	C		300		
RAMY	10	1912	1913	1922	S08	E07	.123		11.3	10	SN	3	C		46		
HOLL	10	2000	2002	2026	S12	E09	.181		11.5	26	1B	3	C		469		D
RAMY	10	2000	2003	2022	S13	E08	.176		11.4	22	2B	3	C		517		
PALE	10	2001E	2001U	2018D	S11	E08	.157		11.4	17D	1B	1	C		400		
RAMY	10	2005	2028	2032D	S18	W71	.939		5.5	27D	SF	3	C		65		
HOLL	10	2006	2025	2123	S19	W73	.950		5.4	77	SF	3	C		0		
RAMY	10	2015	2022	2029	S11	W13	.235		9.9	14	SF	3	C		41		
PALE	10	2028E	2028U	2128D	S22	W75	.960		5.2	60D	SN	1	C		100		
HOLL	10	2116	2117	2132	S08	E06	.107		11.3	16	SN	3	C		48		
HOLL	10	2150	2154	2209	S08	E06	.107		11.4	19	SB	3	C		80		
HOLL	10	2214	2217	2236	S13	W09	.190		10.3	22	SB	3	C		159		D
LEAR	10	2333E	2337	0008	S07	E02	.035		11.1	35	1N	2	C		217		
HOLL	10	2340E	2340U	2355	S08	E06	.107		11.4	15	SN	3	C		175		
PEKG	11	0050	0056	0110D	S08	E04	.073		11.3	20D	SB		P	0056	122	1.2	E
PEKG	11	0056E	0056	0059D	S10	W07	.134		10.5	3D	SF		P	0056	29	.3	E
PEKG	11	0736	0740	0743	S11	E01	.078		11.4	7	SF		C	0740	76	.8	E
HTPR	11	0744E		0756	S11	E01	.078		11.4	12	SN		C	0745	40	.4	
HTPR	11	0818	0819	0824	S13	W15	.277		10.2	6	SN		C	0819	20	.2	
HTPR	11	0844	0848	0922	S09	W10	.177		10.6	38	SF		C	0848	60	.6	
HTPR	11	0907	0908	0912	S15	W17	.320		10.1	5	SF		C	0908	20	.2	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HTPR	11	0917	0919	0925	S07	W01	.018		11.3	8	SF		C	0919	30	.3	E
HTPR	11	0931	0942	1002	S15	W15	.291		10.3	31	SF		C	0942	30	.3	
HTPR	11	0933	0939	0947	S15	W17	.320		10.1	14	SF		C	0939	40	.4	
HTPR	11	0936	0946	1000	S13	W20	.353		9.9	24	SF		C	0946	30	.3	
HTPR	11	0947	0952	1015	S05	W04	.075		11.1	28	SN		C	0952	20	.2	
HTPR	11	0952	0954	1018	S05	W17	.292		10.1	26	SN		C	0954	30	.3	
WEND	11	0953	0957	1008	S05	W15	.259		10.3	15	SF		C	0957	34	.4	
HTPR	11	1022	1027	1036	S13	W20	.353		9.9	14	SF		C	1027	30	.3	
HTPR	11	1025	1027	1033	S15	W18	.335		10.1	8	SN		C	1027	40	.4	E
HTPR	11	1031	1035	1037	S05	W17	.292		10.2	6	SN		C	1035	70	.7	E
WEND	11	1033	1035	1039	S05	W16	.276		10.2	6	SF		C	1035	75	.8	
HTPR	11	1114	1141	1210	S08	E18	.307		12.8	56	1N		C	1141	240	2.4	E
WEND	11	1117	1138	1155	S09	E15	.260		12.6	38	SN		C	1138	112	1.2	
HTPR	11	1121	1128	1235	S10	E03	.078		11.7	74	SF		C	1128	30	.3	
WEND	11	1209	1212	1221	S12	E02	.100		11.7	12	SN		C	1212	78	.8	
HTPR	11	1209	1212	1224	S11	E01	.078		11.6	15	SB		C	1212	180	1.8	E
HTPR	11	1337	1347	1416	S12	E02	.100		11.7	39	1B		C	1347	300	3.0	E
WEND	11	1357E		1408	S13	E03	.122		11.8	11	SN		C	1357	87	.9	
HTPR	11	1426E		1511	S09	W12	.210		10.7	45	SB		C	1437	120	1.2	E
HTPR	11	1427E		1457	S07	W15	.257		10.5	30	SF		C	1437	20	.2	
WEND	11	1429	1438	1457	S10	W12	.214		10.7	28	SN		C	1438	118	1.3	
HTPR	11	1556	1558	1608	S07	W02	.035		11.5	12	SN		C	1558	30	.3	E
HTPR	11	1604		1632D	S06	W16	.274		10.5	28D	SN		C	1615	80	.8	E
BIGB	11	1610E	1616	1644	S10	W16	.279		10.5	34	SN	3	P	1616	110	1.2	
BIGB	11	1625	1628	1646D	S08	W07	.123		11.2	21D	SN	3	P	1628	140	1.5	
HTPR	11	1626		1632D	S05	W06	.108		11.2	6D	SN		C	1628	70	.7	E
BIGB	11	1916	1926	1955	S10	W15	.262		10.7	39	SF	3	C	1926	120	1.3	
BIGB	11	2031	2037	2158	S10	W18	.311		10.5	87	SN	3	C	2037	90	.9	
BIGB	11	2216	2220	2234	S14	W26	.448		10.0	18	SN	3	C	2220	70	.8	
BIGB	11	2321	2325	2335	S07	W25	.420		10.1	14	SN	3	C	2325	80	.9	
BIGB	11	2351	2353	2357	S12	W06	.139		11.5	6	SB	3	C	2353	140	1.5	
PEKG	12	0327E	0327	0340	S06	W12	.207		11.2	13	1N		C	0327	223	2.3	E
PEKG	12	0440	0447	0454	S12	W10	.194		11.4	14	SF		C	0447	21	.2	D
PEKG	12	0457	0459	0524	S09	E04	.080		12.5	27	SN		C	0459	67	.7	E
PEKG	12	0545	0551	0600	S11	W11	.203		11.4	15	1B		C	0551	378	4.0	F
PEKG	12	0630E	0630	0630D	S11	W28	.469		10.2		SF		P	0630	55	.6	E
HTPR	12	0917	0920	0926	S11	W23	.393		10.7	9	SF		C	0920	20	.2	E
HTPR	12	1002	1004	1015	S07	W15	.257		11.3	13	SF		C	1004	30	.3	E
HTPR	12	1010	1024	1110	S20	W41	.668		9.3	60	SF		C	1024	50	.7	
WEND	12	1016	1023	1036	S18	W39	.638		9.5	20	SF		C	1023	44	.6	
WEND	12	1042	1044	1058	S08	W16	.274		11.2	16	SF		C	1044	41	.4	
HTPR	12	1042	1045	1100	S20	W41	.668		9.4	18	SF		C	1045	20	.2	
HTPR	12	1328	1331	1400	S11	W16	.282		11.4	32	SF		C	1331	50	.5	
HTPR	12	1332	1335	1338	S12	W12	.225		11.7	6	SF		C	1335	60	.6	
WEND	12	1333	1334	1342	S13	W14	.262		11.5	9	SN		C	1334	40	.4	H
HTPR	12	1413	1413	1416	N01	E70	.941		17.8	3	SF		C	1413	30	.7	
HTPR	12	1445	1449	1500	S08	W09	.157		11.9	15	SF		C	1449	20	.2	E
HTPR	12	1510	1513	1517	S11	W33	.543		10.2	7	SF		C	1513	40	.5	E
HTPR	12	1544E		1600	S15	E06	.177		13.1	16	SF		C	1551	30	.3	E
YUNN	13	0206	0211	0217	S08	W34	.555		10.5	11	SN		C		31	.4	D
PEKG	13	0220	0225	0235	N13	E13	.400		14.1	15	SF		C	0225	38	.4	D
PEKG	13	0222E	0224	0225	S09	W09	.160		12.4	3	SF		C	0224	92	1.0	E
LEAR	13	0433	0436	0446	S14	E03	.136		13.4	13	SN	2	C		110		
YUNN	13	0436E	0436U	0436D	S10	E01	.060		13.3		SF		P	0436	47	.5	
LEAR	13	0646	0651	0652	S10	W38	.612		10.4	6	SF	3	C		49		
LEAR	13	0653	0656	0721	S10	W37	.598		10.5	28	SF	3	C		51		
WEND	13	0832	0834	0838	N02	E56	.835		17.6	6	SF		C	0834	19	.4	
WEND	13	0914	0916	0919	N03	E58	.855		17.7	5	SN		C	0916	19	.4	
WEND	13	1024	1037	1042	S11	W02	.082		13.3	18	SF		C	1037	38	.4	
WEND	13	1119	1124	1134	S11	W53	.793		9.5	15	SN		C	1124	47	.8	
ATHN	13	1126	1130	1138	S11	W44	.690		10.2	12	SN	3	C		32		
ATHN	13	1130	1135	1144	N02	E60	.871		18.0	14	SN	3	C		32		
WEND	13	1132	1134	1140	S01	E54	.811		17.5	8	SF		C	1134	31	.5	
RAMY	13	1245	1340	1419	N03	E60	.872		18.0	94	SF	3	C		55		
ATHN	13	1246	1257	1316	S15	W61	.869		9.0	30	SN	3	C		32		
RAMY	13	1344	1345	1353	S11	W43	.678		10.3	9	SF	3	C		58		
RAMY	13	1437	1440	1441D	S12	W43	.678		10.4	4D	SF	3	C		62		
RAMY	13	1601	1605	1616	S12	W05	.126		13.3	15	SN	3	C		67		
RAMY	13	1607	1607	1613	N03	E59	.863		18.1	6	SF	3	C		18		
RAMY	13	1810	1817	1818	N02	E50	.773		17.5	8	SF	3	C		31		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. HER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.	TANCE	COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
BIGB	13	1920	1922	1932	S07	W49	.750		10.1	12	SN	3	C	1922	100	1.6	
BIGB	13	1927	1930	1955	S10	W48	.738		10.2	28	SN	3	C	1930	70	1.1	
RAMY	13	1931	1935	2004D	S11	W45	.702		10.4	33D	SB	3	C		92		
HOLL	13	1934E	1935U	1954	S10	W46	.714		10.4	20	SB	2	C		107		
RAMY	13	1936	1940	2004D	S00	W24	.421		12.0	28D	SN	3	C		39		
HOLL	13	1939	1941	1951	S00	W24	.421		12.0	12	SN	3	C		22		
RAMY	13	1939	1945	2005D	N17	E05	.411		14.2	26D	1N	3	C		233		
BIGB	13	1941	1944	2003	N18	E06	.429		14.3	22	SF	3	C	1944	120	1.2	
HOLL	13	1941	1944	2001	N17	E05	.411		14.2	20	SN	2	C		155		
HOLL	13	1955	1955	2014	S02	E48	.744		17.4	19	SF	2	C		22		
HOLL	13	2053	2057	2136	N04	E53	.809		17.8	43	SB	3	C		100		
HOLL	13	2131	2136	2152	S01	E58	.849		18.2	21	SF	3	C		25		
HOLL	13	2209	2209	2213	S12	W31	.515		11.6	4	SF	3	C		26		
BIGB	13	2347	2350	2352D	S12	W33	.544		11.5	5D	SN	3	P	2349	70	.9	
HOLL	13	2347	2349	2358	S12	W32	.530		11.6	11	SB	3	C		141		
LEAR	13	2348	2349	2359	S12	W33	.544		11.5	11	SN	3	C		127		
HOLL	13	2351	2352	0008D	S02	E46	.720		17.4	17D	SN	3	C		28		
LEAR	13	2352	2353	0007	S02	E46	.720		17.4	15	SF	3	C		19		
HOLL	14	0001	0003	0004D	S01	W27	.462		12.0	3D	SB	3	C		129		
LEAR	14	0002	0004	0020	S01	W26	.447		12.1	18	SB	3	C		112		
LEAR	14	0033	0034	0043	S08	W18	.307		12.7	10	SN	3	C		59		
LEAR	14	0140	0143	0221	N04	E51	.788		17.9	41	SB	3	C		119		
PEKG	14	0140	0149	0155	N04	E49	.767		17.7	15	1N		P	0149	168	2.7	F
LEAR	14	0323	0344	0347D	S12	W63	.885		9.4	24D	1B	3	C		310		
PEKG	14	0325	0347	0352	S10	W51	.772		10.3	27	1N		C	0347	151	2.5	E
LEAR	14	0341	0344	0417	S12	W51	.772		10.3	36	1B	3	C		310		
PEKG	14	0345E	0345	0345D	S11	W62	.877		9.5		SF		P	0345	84	1.8	E
PEKG	14	0353	0410	0434	N18	E00	.419		14.2	41	SN		C	0410	67	.8	E
LEAR	14	0402	0408	0441	N18	E01	.419		14.2	39	SN	3	C		108		
PURP	14	0403E	0412	0414D	N17	W01	.404		14.1	11D	SF		V	0412	152	1.7	
PEKG	14	0408	0409	0417	S06	W53	.795		10.2	9	SN		C	0409	105	1.8	E
LEAR	14	0538	0540	0547	S12	W36	.586		11.5	9	SF	3	C		64		
PEKG	14	0538E	0540	0545	S11	W37	.599		11.5	7	SN		P	0540	92	1.2	E
LEAR	14	0548	0551	0604	S13	W53	.793		10.3	16	SF	3	C		65		
YUNN	14	0550	0551	0552D	S12	W51	.772		10.4	2D	SN		P		47	.8	E
LEAR	14	0812	0814	0834	S13	W37	.601		11.6	22	1B	3	C		346		
PURP	14	0813E	0814	0824	S11	W38	.612		11.5	11	1N		C	0814	198	2.6	
ATHN	14	0817E	0817U	0832	S11	W36	.585		11.6	15	SB	2	C		64		
LEAR	14	0938	0938	0947	N01	E41	.665		17.5	9	SF	3	C		22		
WEND	14	0940E	0944	0957D	S10	W39	.625		11.5	17D	SB		C	0944	119	1.6	
LEAR	14	0940	0940	0955	S10	W41	.652		11.3	15	1B	3	C		200		
HOLL	14	1654E	1658U	1659	S11	W64	.893		9.9	5	SN	3	C		19		
BIGB	14	1731	1731	1750	N05	E43	.701		18.0	19	SN	3	C	1731	90	1.3	
HOLL	14	1732	1732	1745	N05	E41	.677		17.8	13	SF	3	C		36		
RAMY	14	1837	1838	1854	S00	E38	.623		17.6	17	SF	3	C		30		
RAMY	14	1920	1920	1923	N04	E36	.609		17.5	3	SF	3	C		29		
RAMY	14	2008	2025	2107D	S12	W69	.928		9.7	59D	1B	3	C		249		
BIGB	14	2016	2028	2126	S15	W68	.921		9.7	70	1B	3	C	2028	140		
BIGB	14	2039	2045	2121	S03	E37	.602		17.6	42	SN	3	C	2045	90	1.2	
RAMY	14	2041	2045	2046D	S00	E36	.595		17.6	5D	SB	3	C		129		
LEAR	14	2309	2312	2325	S11	W45	.702		11.6	16	SN	3	C		146		
BIGB	14	2312	2312	2325	S13	W47	.727		11.4	13	SB	3	C	2312	80	1.2	
PEKG	15	0305	0326	0330	N05	E31	.546		17.5	25	SN		C	0326	92	1.1	E
PEKG	15	0325E	0332	0353	N08	E39	.664		18.1	28	1B		P	0332	365	5.0	U
PEKG	15	0329	0331	0358	S11	W48	.738		11.5	29	SN		C	0331	42	.6	E
LEAR	15	0645	0647	0700	S02	E30	.504		17.5	15	SF	3	C		41		
LEAR	15	0719	0722	0755	S12	W26	.441		13.4	36	1B	3	C		319		
LEAR	15	0834	0836	0841	S00	E29	.496		17.5	7	SF	3	C		24		
LEAR	15	0926	0929	0941	S11	W52	.782		11.5	15	SN	3	C		40		
RAMY	15	1252	1254	1259	N01	E27	.470		17.6	7	SN	3	C		30		
RAMY	15	1255	1300	1302	S11	W54	.803		11.5	7	SF	3	C		20		
RAMY	15	1320	1321	1418	N00	E27	.466		17.6	58	SB	3	C		143		
RAMY	15	1425	1440	1446	S01	E29	.492		17.8	21	SN	3	C		44		
HOLL	15	1721	1729	1800	S02	E23	.398		17.4	39	SN	3	C		71		
HOLL	15	1727	1728	1733	S12	W56	.823		11.5	6	SF	3	C		18		
HOLL	15	1747	1749	1753	N11	E70	.951		21.0	6	SF	3	C		13		
HOLL	15	1802	1804	1817	S00	E24	.421		17.6	15	SN	3	C		90		
HOLL	15	1926	1930	1935	S15	W32	.536		13.4	9	SF	3	C		28		
RAMY	15	1927	1928	1942	S15	W32	.536		13.4	15	SN	3	C		34		
HOLL	15	2000	2000	2010	S11	W72	.946		10.4	10	SF	3	C		18		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	15	2018	2019	2024	S10	W46	.714		12.4	6	SF	3	C		19		
HOLL	15	2029	2036	2100	N14	W24	.525		14.1	31	SF	3	C		26		
HOLL	15	2225	2227	2247	N12	E67	.935		21.0	22	SF	3	C		25		
HOLL	15	2226	2228	2302	N05	E20	.394		17.4	36	SF	3	C		28		
PURP	16	0104	0108	0121	N00	E20	.360		17.5	17	SN		C	0108	172	1.9	E
LEAR	16	0104	0109	0122	N00	E21	.375		17.6	18	1N	2	C		213		
YUNN	16	0104	0107	0120	S01	E21	.371		17.6	16	1N		C		321	3.6	
LEAR	16	0142	0155	0158	N05	E32	.560		18.5	16	SF	2	C		21		
PEKG	16	0427E	0453	0513D	N11	E66	.928		21.1	46D	SN		P	0453	63		E
ISTA	16	0650		0800	N10	E66	.926		21.2	70	SN				0		D
LEAR	16	0751	0752	0809	N01	E17	.321		17.6	18	SF	3	C		31		
LEAR	16	0909E	0910	0915	S09	W77	.971		10.6	6	SF	3	C		0		
YUNN	16	0910	0914	0921	N11	E16	.406		17.6	11	SN		C		32	.4	D
HTPR	16	1003		1019D	N00	E16	.299		17.6	16D	SB		C	1006	180	1.8	E
LEAR	16	1003	1007	1019D	S01	E15	.277		17.5	16D	SN	3	C		176		
HTPR	16	1008	1010	1016	N02	E21	.387		18.0	8	SF		C	1010	20	.2	
ATHN	16	1256E	1302	1332	N01	E18	.336		17.9	36	SB	2	C		143		
WEND	16	1304E		1314D	S01	E14	.261		17.6	10D	SN		C	1305	100	1.1	
RAMY	16	1506E	1516	1517D	S00	E14	.268		17.7	11D	SB	3	C		99		
HOLL	16	1513	1633	1858	N01	E11	.234		17.5	225	SB	3	C		124		
RAMY	16	1556	1556	1639	N11	E13	.376		17.6	43	SF	3	C		31		
BIGB	16	1636E	1641	1737	N01	E12	.247		17.6	61	SN	3	P	1641	80	.8	
RAMY	16	1642	1644	1649	S15	W42	.669		13.5	7	SF	3	C		28		
HOLL	16	1643	1644	1648	S15	W42	.669		13.5	5	SF	3	C		23		
HOLL	16	2244	2244	2306D	S00	E08	.183		17.5	22D	SN	3	C		31		
BIGB	16	2244	2245	2312	N00	E09	.195		17.6	28	SN	3	C	2245	70	.7	
PURP	17	0118E	0119	0122	N10	E50	.794		20.8	4	SB		P	0119	86	1.5	
PURP	17	0324	0327	0328D	N09	E50	.791		20.9	4D	SF		P	0327	112	1.9	
PEKG	17	0507E	0507	0507D	N11	E49	.787		20.9		SF		P	0507	59	1.0	E
YUNN	17	0714E	0714U	0731	N00	E03	.131		17.5	17	SB		P	0714	64	.7	
ISTA	17	0747		0756	N10	E48	.774		20.9	9	1N				0		
BIGB	17	1855	1856	1938	N11	E11	.358		18.6	43	SF	3	C	1856	80	.8	
BIGB	17	1935	1939	1956	N07	E16	.361		19.0	21	SF	3	C	1936	120	1.2	
BIGB	17	1943	1946	1958	N11	E40	.690		20.8	15	SN	3	C	1946	90	1.2	
BIGB	17	2151E	2156	2248	S01	W05	.135		17.5	57	SN	3	P	2156	160	1.7	
BIGB	17	2326	2333	2356	N13	E37	.667		20.8	30	SB	3	C	2333	130	1.7	
MANI	17	2328E	2332	2343	N12	E35	.638		20.6	15	1B	3	C		170		
MANI	17	2328E	2332	2343	N12	E35	.638		20.6	15	1B	1	V		170	2.3	
MANI	18	0034E	0035U	0047D	N03	W05	.193		17.6	13D	SN	1	V		120	1.3	F
YUNN	18	0111	0112	0113	N01	W06	.173		17.6	2	SN		C		64	.7	
YUNN	18	0240	0240	0244	N13	E33	.621		20.6	4	SN		C		32	.4	
MANI	18	0313E	0323	0332D	N01	W07	.184		17.6	19D	SN	1	V		70	.7	F
YUNN	18	0324E	0324U	0346	S00	W07	.171		17.6	22	SB		P	0324	80	.8	D
YUNN	18	0340	0343U	0346	N11	E34	.620		20.7	6	SN		P	0343	64	.8	E
YUNN	18	0411E	0411U	0419	N04	W03	.197		17.9	8	SN		P	0411	48	.5	E
YUNN	18	0448E	0448U	0453D	N12	E31	.590		20.5	5D	SB		P	0448	64	.8	E
ISTA	18	0640E		0735	N11	E39	.679		21.2	55	SB				0		U
YUNN	18	0647	0651	0702	N11	E36	.644		21.0	15	SN		C		32	.4	
YUNN	18	0722	0726	0740	N12	E32	.602		20.7	18	SN		C		48	.6	
ISTA	18	0725		0740	N08	E34	.602		20.9	15	SN				0		D
ISTA	18	0815		0833	N08	E34	.602		20.9	18	SF				0		BD
ISTA	18	0834		0840	N03	W12	.268		17.5	6	SF				0		D
MANI	18	0904E	0905	0910D	N12	E31	.590		20.7	6D	SF	1	V		150	2.0	
WEND	18	0913E		0925	N10	E31	.577		20.7	12	SN		C	0913	63	.8	
HTPR	18	1250	1252	1255	N03	W12	.268		17.6	5	SF		C	1252	20	.2	
HTPR	18	1305	1324	1418	S01	W14	.262		17.5	73	SB		C	1324	100	1.0	E
HTPR	18	1305	1324	1342	N03	W12	.268		17.6	37	SB		C	1324	80	.8	E
WEND	18	1322E		1343D	N01	W14	.277		17.5	21D	SB		C	1328	181	1.9	E
HTPR	18	1457	1524	1532	N04	W13	.292		17.6	35	SF		C	1524	20	.2	
HTPR	18	1522	1524	1530	N11	E27	.534		20.7	8	SF		C	1524	20	.2	
HTPR	18	1610		1625D	N04	W15	.318		17.5	15D	SN		C	1624	120	1.2	E
BIGB	18	2039	2057	2129	N18	W63	.920		14.1	50	SN	3	C	2057	80	1.8	
BIGB	18	2301	2307	2321	N14	W18	.462		17.6	20	SN	3	C	2307	120	1.3	
LEAR	18	2307E	2307	2318	N02	W18	.343		17.6	11	SN	2	C		90		
LEAR	18	2330	2336	0150	N00	W18	.330		17.6	140	1B	2	C		385		
BIGB	18	2331	2338	0017D	S01	W19	.340		17.6	46D	SB	3	P	2338	150	1.6	
MANI	18	2334E	2335	2355D	N02	W19	.358		17.6	21D	SN	3	C		180		
MANI	18	2334E	2335	2355D	N02	W19	.358		17.6	21D	SN	1	V		180	2.0	FE

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	19	0008	0009	0013	N11	E21	.463		20.6	5	SF	3	C		20		
MANI	19	0014E	0014U	0022D	N18	E44	.767		22.3	8D	SF	1	V		50	.8	F
MANI	19	0014E	0014U	0022D	N18	E44	.767		22.3	8D	SF	3	C		50		
MANI	19	0014E	0015	0030D	N01	W20	.366		17.5	16D	SF	1	V		150	1.7	
MANI	19	0014E	0015	0030D	N01	W20	.366		17.5	16D	SF	3	C		150		
YUNN	19	0044E	0044U	0100	S01	W20	.355		17.5	16	SN		P	0044	113	1.2	F
YUNN	19	0051	0055	0100	N12	E20	.462		20.5	9	SN		C		80	.9	
LEAR	19	0052	0054	0106	N11	E20	.451		20.5	14	SB	3	C		120		
MANI	19	0054E	0054U	0059D	N11	E20	.451		20.5	5D	SN	3	C		60		
MANI	19	0054E	0054U	0059D	N11	E20	.451		20.5	5D	SN	1	V		60	.7	
LEAR	19	0237	0238	0244	N02	W19	.358		17.7	7	SF	3	C		51		
LEAR	19	0452	0454	0538	N01	W22	.396		17.6	46	1B	3	C		332		
PEKG	19	0452E	0501	0537	N01	W23	.411		17.5	45	1N		C	0501	421	4.7	F
PEKG	19	0501E	0501	0504	N12	E17	.429		20.5	3	SN		P	0501	147	1.7	E
LEAR	19	0503	0504	0507	N11	E18	.429		20.6	4	SN	3	C		61		
LEAR	19	0558	0558	0618	N05	W20	.395		17.7	20	SN	3	C		78		
HTPR	19	0823	0827	0837	N06	W20	.404		17.8	14	SF		C	0827	40	.4	E
LEAR	19	0826	0827	0832	N04	W19	.373		17.9	6	SN	3	C		46		
HTPR	19	0918	0919	0922	N03	W25	.452		17.5	4	SF		C	0919	20	.2	
HTPR	19	1137	1140	1142	N03	W28	.495		17.4	5	SF		C	1140	30	.3	
HTPR	19	1144	1152	1217	N16	E20	.505		21.0	33	SF		C	1152	80	.8	E
WEND	19	1147		1237D	N13	E21	.483		21.1	50D	SF		C	1153	156	1.8	E
RAMY	19	1200	1341	1636	S00	W27	.467		17.5	276	2B	3	C		701		
HTPR	19	1242	1252	1304	S01	W24	.417		17.7	22	SN		C	1252	50	.5	E
HTPR	19	1247		1307D	N00	W16	.299		18.3	20D	SF		C	1253	30	.3	
HTPR	19	1325		1426D	N03	W27	.481		17.5	61D	1N		C	1346	240	2.6	E
HTPR	19	1331	1340	1407	N00	W16	.299		18.4	36	SN		C	1343	70	.7	E
RAMY	19	1333	1336	1349	S00	W15	.284		18.4	16	SF	3	C		52		
HTPR	19	1338	1340	1348	S06	W21	.357		18.0	10	SF		C	1340	30	.3	
WEND	19	1355E	1359	1502	S01	W26	.448		17.6	67	2B		C	1359	538	6.2	
HOLL	19	1415E	1415U	1556	S01	W27	.463		17.6	101	SN	2	C		85		
WEND	19	1523	1538	1603D	S01	W28	.478		17.5	40D	1F		C	1538	200	2.3	
HTPR	19	1617	1621	1627	N11	E14	.387		20.7	10	SN		C	1621	120	1.2	E
HOLL	19	1619	1621	1628	N10	E12	.355		20.6	9	SB	3	C		190		
RAMY	19	1619	1621	1626	N11	E12	.368		20.6	7	SB	3	C		149		
BIGB	19	1620	1622	1636	N11	E13	.377		20.7	16	SN	3	C	1622	80	.8	
RAMY	19	1746	1750	1800	N10	E13	.364		20.7	14	SN	3	C		70		
HOLL	19	1746	1749	1759	N09	E12	.341		20.6	13	SN	3	C		94		
BIGB	19	1903	1907	1916	N03	W34	.579		17.2	13	SN	3	C	1907	70	.9	
HOLL	19	1904	1908	1937	N03	W34	.579		17.2	33	1B	3	C		205		D
RAMY	19	1904	1907	1934	N03	W33	.565		17.3	30	SB	3	C		84		
BIGB	19	1913	1916	1934	N06	W25	.471		17.9	21	SN	3	C	1916	100	1.1	
RAMY	19	2010	2011	2044	S01	W30	.508		17.6	34	SN	3	C		43		
HOLL	19	2012	2024	2047	S01	W30	.508		17.6	35	SF	3	C		72		
HOLL	19	2143	2151	2157	N11	E19	.440		21.3	14	SF	3	C		74		
HOLL	19	2154	2226	2308	S00	W30	.511		17.7	74	SF	3	C		68		
LEAR	20	0242	0243	0247	N04	W31	.542		17.8	5	SN	3	C		38		
PEKG	20	0243E	0245	0246D	N05	W31	.547		17.8	3D	SF		P	0245	55	.7	D
YUNN	20	0244E	0244U	0246	N05	W31	.547		17.8	2	SN		P	0244	16	.2	
LEAR	20	0353	0358	0405	N10	E16	.396		21.4	12	SB	3	C		75		
LEAR	20	0707	0729	0731D	N02	W34	.575		17.7	24D	1N	3	C		384		
YUNN	20	0709	0729	0745	N05	W32	.561		17.9	36	SB		C		161	2.0	F
MANI	20	0728E	0728U	0733D	N05	W34	.588		17.8	5D	SF	2	C		100		
MANI	20	0728E	0728U	0733D	N05	W34	.588		17.8	5D	SF	1	V		100	1.3	F
PEKG	20	0751	0752	0810	N06	W33	.579		17.9	19	SF		P	0752	113	1.5	E
WEND	20	0839	0844	0846D	N01	W38	.626		17.5	7D	SF		C	0844	63	.8	
HTPR	20	0911E		0932D	N00	W40	.650		17.4	21D	SN		C	0930	120	1.6	E
WEND	20	0915	0942	1026	N00	W37	.610		17.6	71	2B		C	0942	413	5.3	
LEAR	20	0915	0937	1029D	N00	W38	.623		17.5	74D	2B	3	C		503		
MONT	20	0924	0929	0950D	S01	W40	.647		17.4	26D	1N		C	0929	250		
HTPR	20	1013E		1036D	S02	W40	.645		17.4	23D	SN		C	1021	70	.9	
WEND	20	1049	1058	1113	N04	W34	.583		17.9	24	SN		C	1058	156	1.9	
WEND	20	1203	1208	1223	S01	W40	.647		17.5	20	SF		C	1208	88	1.2	
HTPR	20	1232E		1244D	N06	W20	.404		19.0	12D	SF		C	1236	30	.3	
WEND	20	1235	1239	1248	N05	W21	.409		18.9	13	SF		C	1239	94	1.0	
WEND	20	1303	1305	1311	N04	E53	.809		24.5	8	SF		C	1305	56	1.0	
BIGB	20	1755	1817	1932	S17	E65	.900		25.6	97	1B	3	C	1817	280		
RAMY	20	1756	1806	1951	S15	E65	.900		25.6	115	2B	3	C		358		
HOLL	20	1757	1808	1930	S14	E66	.907		25.7	93	2B	3	C		367		
HOLL	20	1846	1846	1911	S02	W45	.709		17.4	25	SN	3	C		33		
RAMY	20	1846	1847	1859	N02	W42	.680		17.6	13	SN	3	C		31		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	20	1947	1950	1956	S02	W43	.684		17.6	9	SN	3	C		24		
HOLL	20	2014	2016	2020	N04	W40	.661		17.8	6	SF	3	C		31		
BIGB	20	2156	2202	2230	N02	W48	.752		17.3	34	SN	3	C	2202	100	1.5	
HOLL	20	2201	2211	2223	N02	W49	.763		17.2	22	SN	3	C		30		
HOLL	20	2341	2344	2357	S01	W42	.673		17.8	16	SF	3	C		49		
YUNN	21	0029E	0029U	0032	S03	W46	.719		17.6	3	1N		P	0029	161	2.4	D
PURP	21	0124	0130	0213	S01	W47	.734		17.5	49	SN		C	0130	132	2.0	E
LEAR	21	0124	0128	0233	N01	W47	.738		17.5	69	SB	3	C		65		
MANI	21	0126E	0128	0140	N02	W47	.740		17.5	14	SN	3	C		60		
MANI	21	0126E	0128	0140	N02	W47	.740		17.5	14	SN	1	V		60	.9	F
YUNN	21	0127E	0133	0201	N01	W46	.726		17.6	34	SB		P		129	1.9	F
PEKG	21	0129E	0141	0155D	S01	W48	.746		17.5	26D	SN		P	0141	101	1.5	E
PEKG	21	0129E	0130	0155D	N00	W46	.724		17.6	26D	SN		P	0130	55	.8	DK
PEKG	21	0340E	0340	0347	N01	W49	.761		17.5	7	SF		C	0343	17	.3	D
LEAR	21	0852	0853	0903	N04	W47	.745		17.8	11	SF	3	C		18		
WEND	21	1055	1059	1110	S01	W51	.779		17.6	15	SF		C	1059	38	.6	
HOLL	21	1623	1623	1643	N03	W49	.765		18.0	20	SF	3	C		43		
BIGB	21	1623	1631	1654	N04	W50	.778		17.9	31	SN	3	C	1631	110	1.8	
HOLL	21	1851	1856	1917	N03	W52	.797		17.9	26	SB	3	C		120		
BIGB	21	1852	1857	1917	N05	W51	.791		18.0	25	SN	3	C	1857	80	1.3	
BIGB	21	2049	2057	2205	S03	W58	.847		17.5	76	SN	3	C	2057	60	1.2	
LEAR	22	0207	0210	0233	N01	W56	.833		17.9	26	SN	3	C		54		
LEAR	22	0911	0915	0925	N01	W67	.923		17.4	14	SB	3	C		116		
MONT	22	0911	0913	0919	N03	W65	.911		17.5	8	SF		C	0913	50		D
YUNN	22	0912E	0912U	0917D	N01	W64	.901		17.6	5D	SN		P	0912	80	1.9	D
MANI	22	0913E	0914	0922D	N01	W68	.929		17.3	9D	SN	3	C		105		
MANI	22	0913E	0914	0922D	N01	W68	.929		17.3	9D	1N	1	V		105	2.2	
LEAR	22	0938	0938	0945	N01	W64	.901		17.6	7	SF	3	C		14		
LEAR	23	0311	0313	0318	N08	W61	.888		18.6	7	SF	3	C		14		
LEAR	23	0318	0318	0324	S01	W75	.966		17.5	6	SN	3	C		0		
RAMY	23	1736	1737	1749	N05	E08	.250		24.3	13	SF	3	C		38		
RAMY	23	1738	1740	1754	N13	W38	.679		20.9	16	SF	3	C		25		
HOLL	23	1808	1810	1818	N11	E89	1.000		2.4	10	SF	3	C		0		
HOLL	23	2001	2003	2010	N11	W38	.668		21.0	9	SF	3	C		30		
BIGB	23	2048	2130	2159	N12	W40	.696		20.9	71	SN	3	C	2130	70	.9	
LEAR	24	0016	0017	0022	N12	W41	.708		20.9	6	SN	3	C		41		
LEAR	24	0114	0115	0121	N13	E75	.975		1.7	7	SN	3	C		0		
LEAR	24	0351	0353	0416	N11	E75	.974		1.8	25	SF	3	C		0		
YUNN	24	0936	0945	1000	S12	E60	.860		28.9	24	SN		C		64	1.3	E
HTPR	24	1215	1224	1229	S12	E50	.760		28.3	14	SF		C	1224	20	.3	
RAMY	24	1329E	1330	1336	N13	E80	.990		2.6	7	SF	3	C		0		
RAMY	24	1330	1337	1402	S13	E51	.771		28.4	32	SN	3	C		129		
HTPR	24	1334	1338	1350	S12	E50	.760		28.3	16	SF		C	1338	30	.4	
RAMY	24	1411	1412	1418	N11	E72	.961		2.0	7	SF	3	C		0		
HTPR	24	1515	1526	1532	S12	E49	.749		28.3	17	SF		C	1526	30	.4	
HTPR	24	1551	1554	1559	N15	E70	.955		1.9	8	SB		C	1554	80	1.9	E
RAMY	24	1552E	1552U	1601	N13	E68	.942		1.8	9	1B	3	C		125		
HOLL	24	1552	1553	1603	N15	E71	.960		2.0	11	1B	2	C		125		
HTPR	24	1628		1646D	N08	W05	.274		24.3	18D	1N		C	1637	220	2.2	
RAMY	24	1628	1638	1749D	N07	W03	.249		24.5	81D	SB	3	C		193		
HOLL	24	1633	1633	1725D	N08	W05	.274		24.3	52D	SB	2	C		80		
MANI	24	2336E	2337	2339	N16	E72	.965		2.4	3	SF	1	V		40	.9	F
MANI	24	2336E	2337	2339	N16	E72	.965		2.4	3	SF	3	C		40		
YUNN	25	0054	0058	0110	N13	E66	.931		2.0	16	SN		C		32		D
PURP	25	0121		0150D	N06	W10	.284		24.3	29D	SN		V	0140	59	.6	
PEKG	25	0129E	0129	0131	N07	W10	.298		24.3	2	SF		P	0129	63	.7	E
PEKG	25	0129E	0129	0130	N13	E64	.918		1.9	1	SF		P	0129	84		E
YUNN	25	0142	0150	0202	N06	W09	.274		24.4	20	1N		C		321	3.4	F
PEKG	25	0337	0340	0342	N11	E65	.922		2.0	5	SN		P	0340	34		E
LEAR	25	0339	0350	0405	N13	E59	.883		1.6	26	1B	3	C		205		
PURP	25	0346E	0351	0357D	N13	E61	.898		1.7	11D	1B		P	0351	119		
PEKG	25	0346	0348	0400	N13	E61	.898		1.7	14	SN		P	0348	76		E
LEAR	25	0519	0520	0526	S06	E69	.930		2.4	7	SF	3	C		29		
LEAR	25	0524	0537	0541	N11	E62	.901		1.9	17	SF	3	C		15		
LEAR	25	0631	0632	0651	N11	E62	.901		1.9	20	SF	3	C		19		
PEKG	25	0637E	0637	0645	N12	E63	.910		2.0	8	SF		P	0637	29		DT
PURP	25	0720	0724	0726D	N12	E64	.917		2.1	6D	1N		C	0724	99		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMR DAY	MIN.		CONO.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HTPR	25	0720	0726	0731	N13	E63	.912		2.0	11	SN		C	0726	40	.8	E
YUNN	25	0724	0725	0730	N12	E62	.903		2.0	6	1N		C		113	2.7	E
LEAR	25	0830	0840	0856	N13	E57	.867		1.6	26	1N	3	C		132		
YUNN	25	0831	0837	0850	N15	E59	.887		1.8	19	SN		C		32	.7	
HTPR	25	0831	0841	0846	N15	E60	.895		1.9	15	SF		C	0841	80	1.6	E
MANI	25	0837E	0839	0850D	N15	E60	.895		1.9	13D	SN	2	C		100		
MANI	25	0837E	0839	0850D	N15	E60	.895		1.9	13D	SN	1	V		100	2.0	
HTPR	25	0943	0949	1001	N13	E63	.912		2.1	18	SN		C	0949	40	.8	
HTPR	25	0954	1001	1020	N12	E27	.544		27.4	26	SF		C	1001	70	.8	E
HTPR	25	1228	1232	1300	N12	E24	.509		27.3	32	SN		C	1232	70	.8	E
HTPR	25	1230	1235	1240	N13	E60	.890		2.0	10	SB		C	1235	100	2.0	
HTPR	25	1439	1443	1451	N15	E58	.880		2.0	12	1N		C	1443	120	2.3	E
RAMY	25	1440	1443	1451	N13	E55	.850		1.7	11	SB	3	C		119		
HTPR	25	1606		1635D	N12	W65	.923		20.8	29D	SF		C	1607	30	.6	E
HTPR	25	1616		1635D	N07	W40	.673		22.7	19D	SF		C	1622	20	.3	E
RAMY	25	1732	1853	1926	N11	E66	.928		2.7	114	SN	3	C		63		
RAMY	25	1855	1907	1917	N13	E59	.883		2.2	22	SN	3	C		110		
RAMY	25	1952	1957	2052D	N05	E46	.737		1.3	60D	SN	3	C		124		
PEKG	26	0211E	0211U	0218	S11	E37	.598		28.9	7	SN		P	0211	25	.3	E
PURP	26	0302	0319	0335D	N14	E68	.944		3.2	33D	2B		C	0319	244		
PEKG	26	0311	0328U	0353	N13	E65	.925		3.0	42	SN		C	0328	55		FU
PEKG	26	0315	0337	0348	N14	E47	.780		1.7	33	SB		C	0337	59	1.0	E
LEAR	26	0315	0324	0358	N12	E65	.923		3.0	43	1B	3	C		305		
PURP	26	0319	0335	0335D	N14	E51	.818		2.0	16D	SB		V	0335	92	1.6	
LEAR	26	0332	0336	0346	N13	E46	.765		1.6	14	1B	3	C		372		
YUNN	26	0336E	0338U	0338D	N16	E46	.778		1.6	2D	1N		P	0338	225	3.7	
YUNN	26	0336E	0338U	0358	N16	E64	.923		2.9	22	2N		P	0338	241		F
LEAR	26	0408	0416	0421	N16	E54	.850		2.2	13	SF	3	C		20		
LEAR	26	0422	0426	0431	N16	E55	.859		2.3	9	SN	3	C		96		
PEKG	26	0426E	0426U	0426D	N11	E52	.818		2.1		SF		P	0426	46	.8	D
LEAR	26	0508	0508	0519	S21	E90	.999		5.0	11	SF	3	C		0		
PEKG	26	0523	0528	0625	N15	E69	.950		3.4	62	SF		C	0528	21		D
PEKG	26	0555E	0555U	0625	N17	E69	.953		3.4	30	SF		C	0555	42		ET
LEAR	26	0614	0616	0625	S21	E88	.997		4.9	11	SF	3	C		0		
PEKG	26	0616	0621	0630	N11	E50	.798		2.0	14	SF		P	0621	17	.3	D
PEKG	26	0621E	0621	0621D	S04	E57	.837		2.5		SF		P	0621	42	.8	D
HTPR	26	0721	0725	0730	N18	E54	.857		2.4	9	SF		C	0725	50	.8	
LEAR	26	0722	0726	0733	N14	E52	.827		2.2	11	SF	3	C		43		
HTPR	26	0725	0730	0733	N17	E67	.942		3.3	8	SN		C	0730	40	1.0	
LEAR	26	0725	0726	0734	N14	E63	.913		3.0	9	SN	3	C		26		
PEKG	26	0729E	0731U	0731D	N14	E64	.920		3.1	2D	SF		C	0731	38		DT
ATHN	26	0730E	0732	0738	N12	E63	.910		3.0	8	SB	4	C		64		
HTPR	26	0801	0805	0810	N16	E47	.788		1.9	9	SF		C	0805	20	.3	
HTPR	26	0907	0915	0930	N18	E52	.840		2.3	23	SF		C	0915	30	.5	
YUNN	26	0916	0917	0926	N17	E51	.828		2.2	10	1N		C		209	3.8	F
HTPR	26	1146	1147	1150	S15	E27	.463		28.5	4	SF		C	1147	50	.6	E
HTPR	26	1305	1307	1310	N14	E51	.818		2.4	5	SF		C	1307	30	.5	
HTPR	26	1517	1520	1534	N17	E44	.763		1.9	17	SN		C	1520	80	1.1	E
BIGB	26	1736	1741	1753	S04	W86	.997		20.3	17	SN	3	C	1741	70		
LEAR	27	0318	0319	0341	S14	E22	.385		28.8	23	SF	3	C		23		
LEAR	27	0342	0342	0350	N07	E51	.797		3.0	8	SF	3	C		22		
LEAR	27	0343	0345	0354	S09	W04	.076		26.9	11	SF	3	C		35		
LEAR	27	0500	0510	0517	S23	E82	.984		5.4	17	SF	3	C		0		
YUNN	27	0626	0628	0634	S12	W83	.990		21.0	8	1N		C		161		AG
LEAR	27	0627	0627	0633	S11	W90	1.000		20.5	6	SF	3	C		0		
PEKG	27	0629E	0634	0637	S10	W90	1.000		20.5	8	SF		P	0634	50		D
ISTA	27	0800E		0820	S25	E90	.999		6.1	20	SN				0		D
LEAR	27	0831	0836	0848	S23	E81	.981		5.4	17	1B	3	C		0		
HTPR	27	0834	0837	0842	S21	E75	.959		5.0	8	SN		C	0837	50		
WEND	27	0834	0838	0858	S22	E85	.992		5.7	24	1N		C	0838	136		A
ISTA	27	0835		0902	S20	W88	.997		20.8	27	2B				0		CJ
MANI	27	0836E	0837	0853D	S22	E81	.982		5.4	17D	1N	3	C		150		
MANI	27	0836E	0837	0853D	S22	E81	.982		5.4	17D	1N	1	V		150	4.1	
ATHN	27	0837E	0837U	0916D	S17	E89	.999		6.0	39D	SB	1	C		80		D
YUNN	27	0841E	0841	0900	S21	E87	.996		5.9	19	SF		C		0		A
LEAR	27	0900	0905	0908	N15	E32	.625		1.8	8	SN	3	C		27		
LEAR	27	0901	0902	0909	N04	E27	.488		1.4	8	SF	3	C		27		
LEAR	27	0924	0926	0939	S12	W90	1.000		20.6	15	SN	3	C		0		
HTPR	27	0924	0927	0936	S12	W90	1.000		20.6	12	SN		C	0927	50		
YUNN	27	0926	0930	0936	S13	W84	.992		21.1	10	SF		C		0		AG

Hα SOLAR FLARES

FEBRUARY 1982

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LON. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	27	0928		0943	S22	E90	.999		6.1	15	SB				0		D
WEND	27	1041	1049	1058	N14	E31	.607		1.8	17	SN		C	1049	28	.3	
WEND	27	1135	1138	1150	S22	E79	.975		5.4	15	1N		C	1138	56		A
HTPR	27	1136	1137	1141	S15	E80	.980		5.5	5	SB		C	1137	40		
WEND	27	1313	1318	1326	S22	E79	.975		5.5	13	SF		C	1318	34		
HTPR	27	1400	1426	1550	S20	E04	.231		27.9	110	1N		C	1426	260	2.6	ES
WEND	27	1421E	1428	1522	S18	E03	.194		27.8	61	1N		C	1428	238	2.6	I
WEND	27	1551	1553	1555	N14	E29	.584		1.8	4	SN		C	1553	31	.4	
HTPR	27	1615		1648D	N20	E51	.839		3.5	33D	SF		C	1620	20	.3	
HTPR	27	1626	1632	1645	N16	E36	.676		2.4	19	SF		C	1632	20	.3	
HOLL	27	1916	1934	2113D	N15	E43	.744		3.0	117D	SN	3	C		159		
HOLL	27	1929	1931	1951	S19	E68	.920		4.9	22	SF	3	C		20		
MANI	28	0020	0021	0030	N16	E30	.611		2.3	10	SB	1	V		80	1.0	F
MANI	28	0020	0021	0030	N16	E29	.601		2.2	10	SB	3	C		80		
PEKG	28	0026E	0026	0027	N17	E31	.630		2.3	1	SN		P	0026	46	.6	D
YUNN	28	0031E	0036	0051	N17	E31	.630		2.3	20	SN		P	0031	48	.6	D
LEAR	28	0222	0224	0237	N15	E40	.713		3.1	15	SF	3	C		30		
LEAR	28	0402	0403	0424	N15	E27	.570		2.2	22	SB	3	C		33		
PEKG	28	0403	0405	0420	N15	E28	.581		2.3	17	SN		C	0405	59	.7	E
YUNN	28	0405E	0409	0425	N16	E29	.601		2.3	20	SN		P		48	.6	E
MANI	28	0409E	0410U	0413D	N16	E27	.579		2.2	4D	SN	1	V		60	.8	
MANI	28	0409E	0410U	0413D	N16	E27	.579		2.2	4D	SN	3	C		60		
LEAR	28	0422	0425	0445	S27	E64	.896		5.0	23	SF	3	C		25		
LEAR	28	0440	0444	0533	N13	E35	.646		2.8	53	SN	3	C		108		
YUNN	28	0441	0445	0515	N14	E37	.674		3.0	34	1F		C		321	4.5	F
PEKG	28	0441	0451	0555	N14	E36	.663		2.9	74	1N		C	0451	172	2.4	F
PURP	28	0445E	0445U	0457D	N20	E25	.597		2.1	12D	2B		V	0445	482	6.1	
PEKG	28	0450E	0453	0545	N20	E23	.579		1.9	55	2B		C	0453	610	7.7	FU
LEAR	28	0450	0452	0523	N19	E24	.578		2.0	33	2B	3	C		927		
YUNN	28	0452E	0453	0513	N21	E23	.590		1.9	21	2B		P		675	8.6	FI
MANI	28	0452E	0452U	0508	N17	E25	.568		2.1	16	1B	1	V		190	2.4	F
MANI	28	0452E	0452U	0508	N17	E25	.568		2.1	16	1B	3	C		190		
YUNN	28	0453	0454	0459	N22	E04	.492		28.5	6	SN		C		129	1.5	EG
MANI	28	0457E	0459U	0502D	N15	E39	.702		3.1	5D	SN	3	C		100		
MANI	28	0457E	0459U	0502D	N15	E39	.702		3.1	5D	SN	1	V		100	1.4	F
PEKG	28	0538	0540	0546	S10	W10	.178		27.5	8	SF		P	0540	17	.2	DH
YUNN	28	0549	0553	0607	N20	E43	.769		3.5	18	SN		C		48	.8	D
PEKG	28	0551	0555	0602	N19	E44	.773		3.5	11	SF		P	0555	59	.9	E
LEAR	28	0551	0553	0608	N18	E42	.749		3.4	17	SN	3	C		28		
LEAR	28	0558	0603	0610	S17	E23	.415		2.0	12	SN	3	C		42		
LEAR	28	0625	0628	0640	N17	E42	.744		3.4	15	SN	3	C		42		
YUNN	28	0708	0712	0712D	N18	E22	.549		1.9	4D	SN		P		80	1.0	E
LEAR	28	0709	0712	0718	N17	E21	.528		1.9	9	SN	3	C		29		
PEKG	28	0710	0712	0716	N19	E21	.550		1.9	6	SF		P	0712	42	.4	E
LEAR	28	0747	0749	0752	S16	E20	.366		1.8	5	SN	3	C		29		
LEAR	28	0751	0751	0805	N20	E36	.703		3.0	14	SF	3	C		38		
LEAR	28	0813	0813	0822	N15	E37	.680		3.1	9	SB	3	C		19		
LEAR	28	0848E	0849U	0906	N06	W52	.804		24.5	18	SF	2	C		51		
LEAR	28	0848E	0904U	0932D	S08	E27	.450		2.4	44D	SN	2	C		155		
YUNN	28	0904E	0906	0930	S06	E28	.467		2.5	26	1B		P		225	2.6	
PEKG	28	0910	0918	0936D	S05	E27	.453		2.4	26D	SB		P	0918	160	1.8	FL
PEKG	28	0910	0912U	0936D	S05	E28	.468		2.5	26D	SN		P	0912	63	.7	EHK
PEKG	28	0917	0918	0918D	N07	W52	.807		24.5	1D	SF		P	0918	25	.4	D
LEAR	28	0920	0921	0932D	N16	E26	.569		2.3	12D	SN	3	C		37		
HOLL	28	2039	2047	2128	N14	E26	.550		2.8	49	1B	3	C		232		
HOLL	28	2106	2107	2114	S22	E57	.837		5.2	8	SN	3	C		20		
HOLL	28	2224	2224	2242	S17	E14	.289		2.0	18	SF	3	C		38		
HOLL	28	2228	2234	2243	N16	E18	.489		2.3	15	SF	3	C		22		
HOLL	28	2252	2254	2305	S19	E53	.796		4.9	13	SF	3	C		33		
MANI	28	2350E	2350U	2356D	N12	E15	.412		2.1	6D	SF	3	C		40		
MANI	28	2350E	2350U	2356D	N12	E15	.412		2.1	6D	SF	1	V		40	.4	
HOLL	28	2351	0007	0009D	N12	E15	.412		2.1	18D	SB	3	C		134		

ERRATA: Solar Flare data for October 1981 through January 1982 have two different errors in them:

1.) The central distance is wrong, i.e., the distance from the center of the disk in units of disk radius is miscalculated; and

2.) The CMP day for all Western Hemisphere flares is wrong, i.e., the time of central meridian passage of the position of Western Hemisphere flares is miscalculated (all flares were treated as though they occurred in the Eastern Hemisphere).

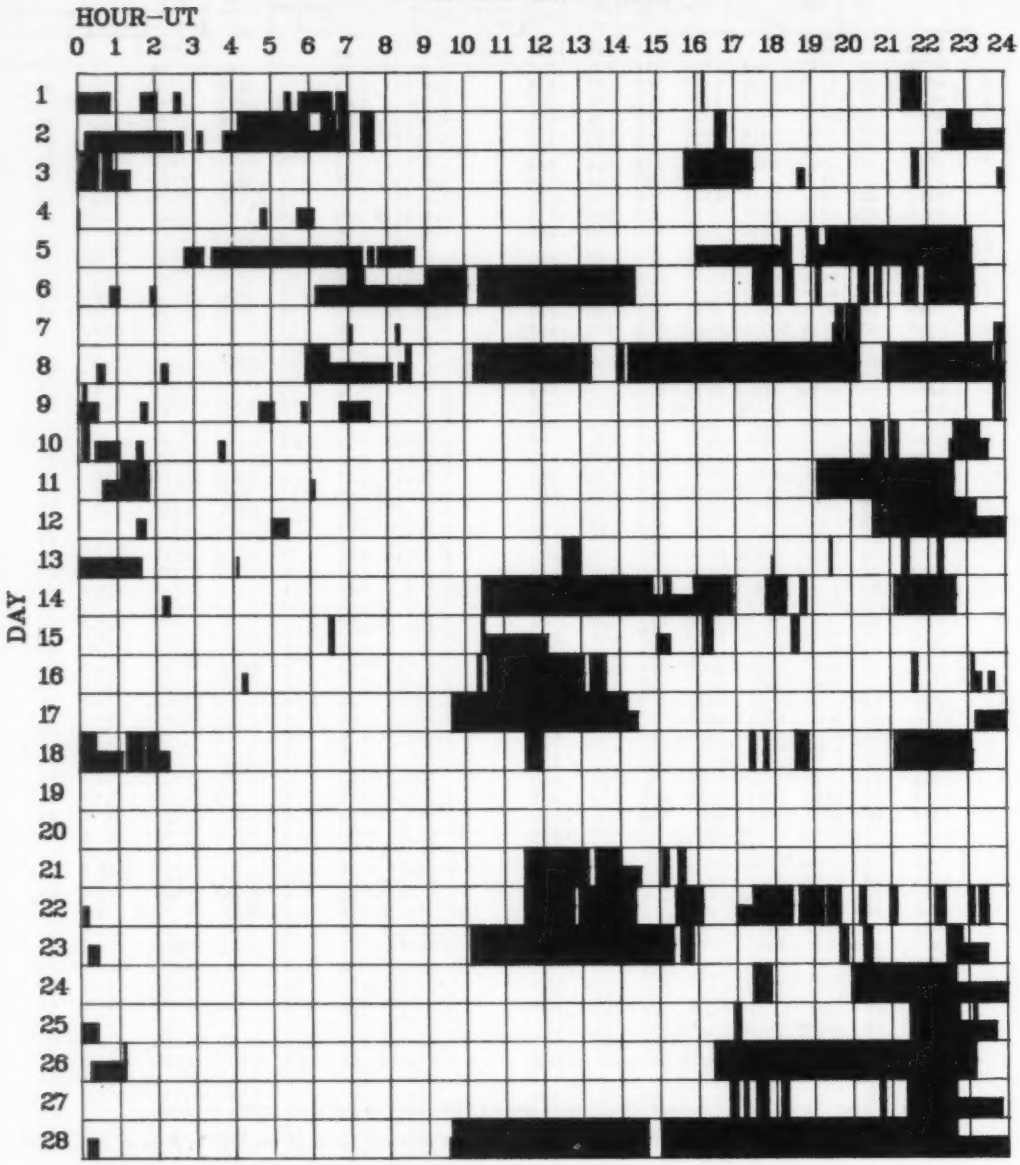
Both errors resulted from the recent computer conversion efforts at NGSDC. The computer programs were not checked out sufficiently. We apologize for this oversight. The early flare data are routinely reviewed for publication in the Comprehensive Report portion of SGD. Corrected values for the October 1981 through January 1982 flares will appear there.

Errors due to the NGSDC/WDC-A conversion also appear in the February and March 1980 final solar flare listings. These errors include the CMP day error for all Western Hemisphere flares, as well as an occasional Hale Plage region number error (this problem will be addressed after consultation with Meudon). The central distances in these listings are correct.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

FEBRUARY 1982



Observatories included in total patrol:

Bucharest	Istanbul	Monte Mario	Purple Mt.	Wendelstein
Haute Provence	Learmonth	Palehua	Ramey	Yunnan
Holloman	Manila	Peking	Upice	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

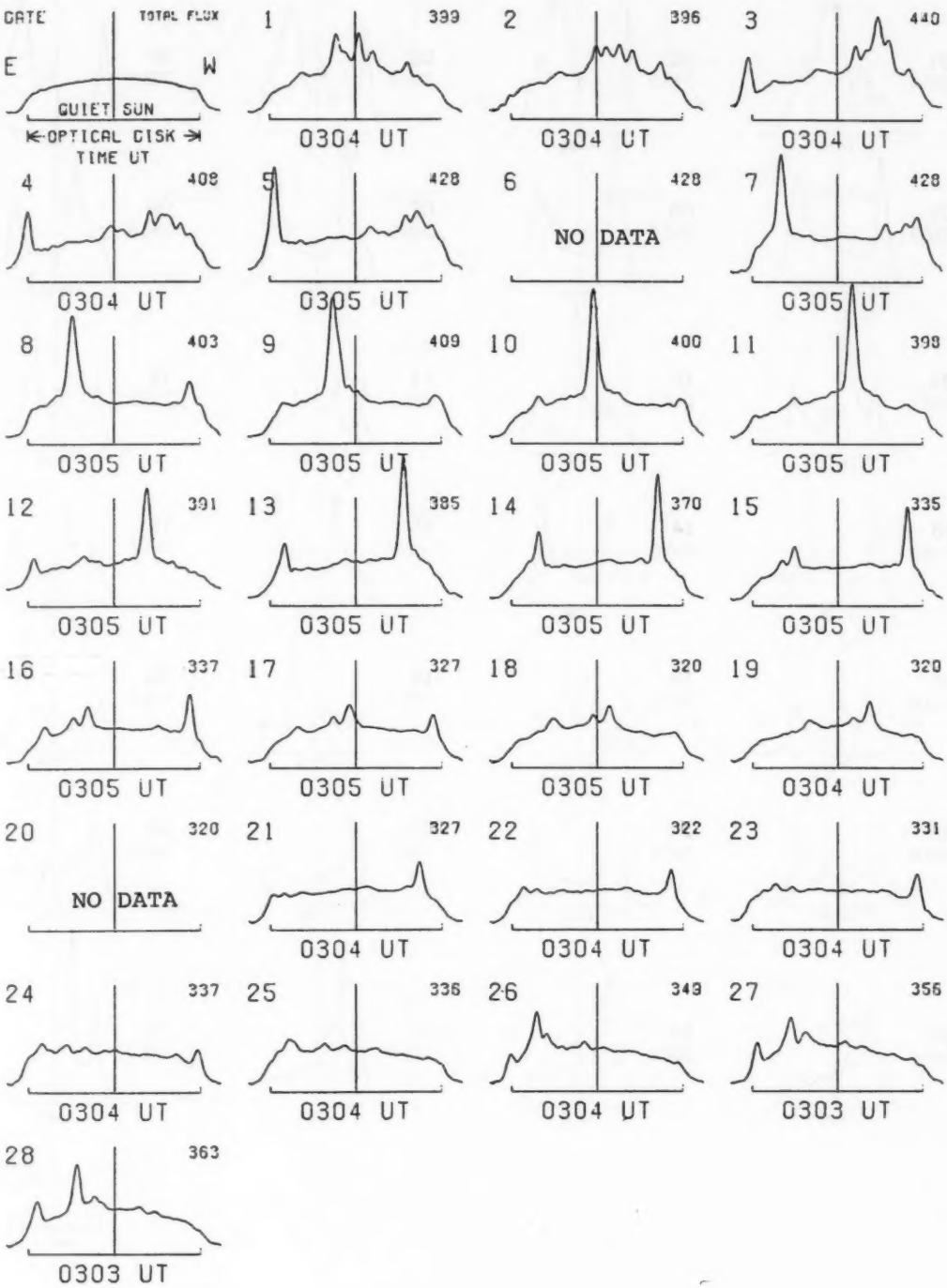
EAST-WEST SOLAR SCANS

FEBRUARY 1982

TOYOKAWA, JAPAN

3 CM

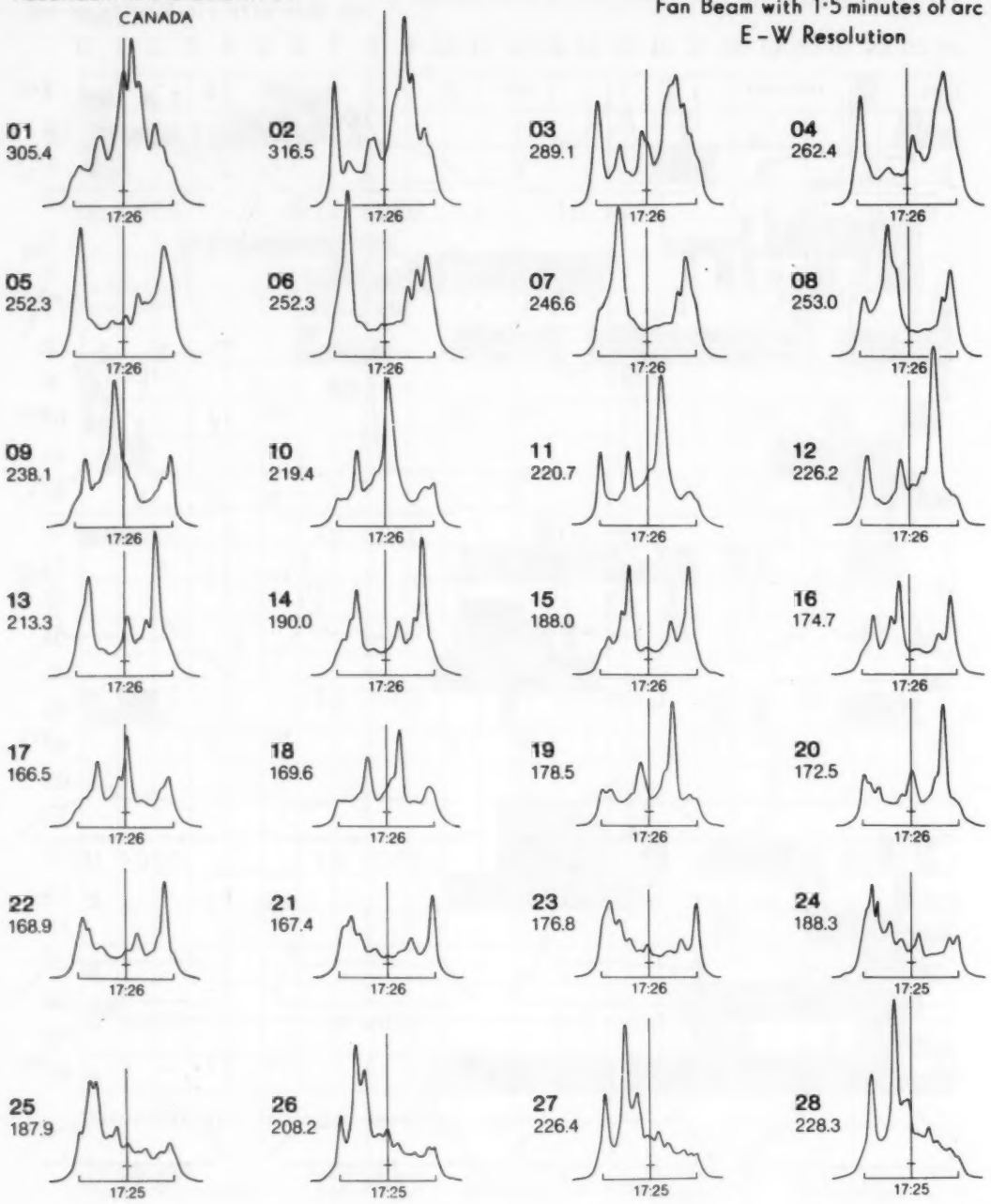
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
FEBRUARY 1982

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

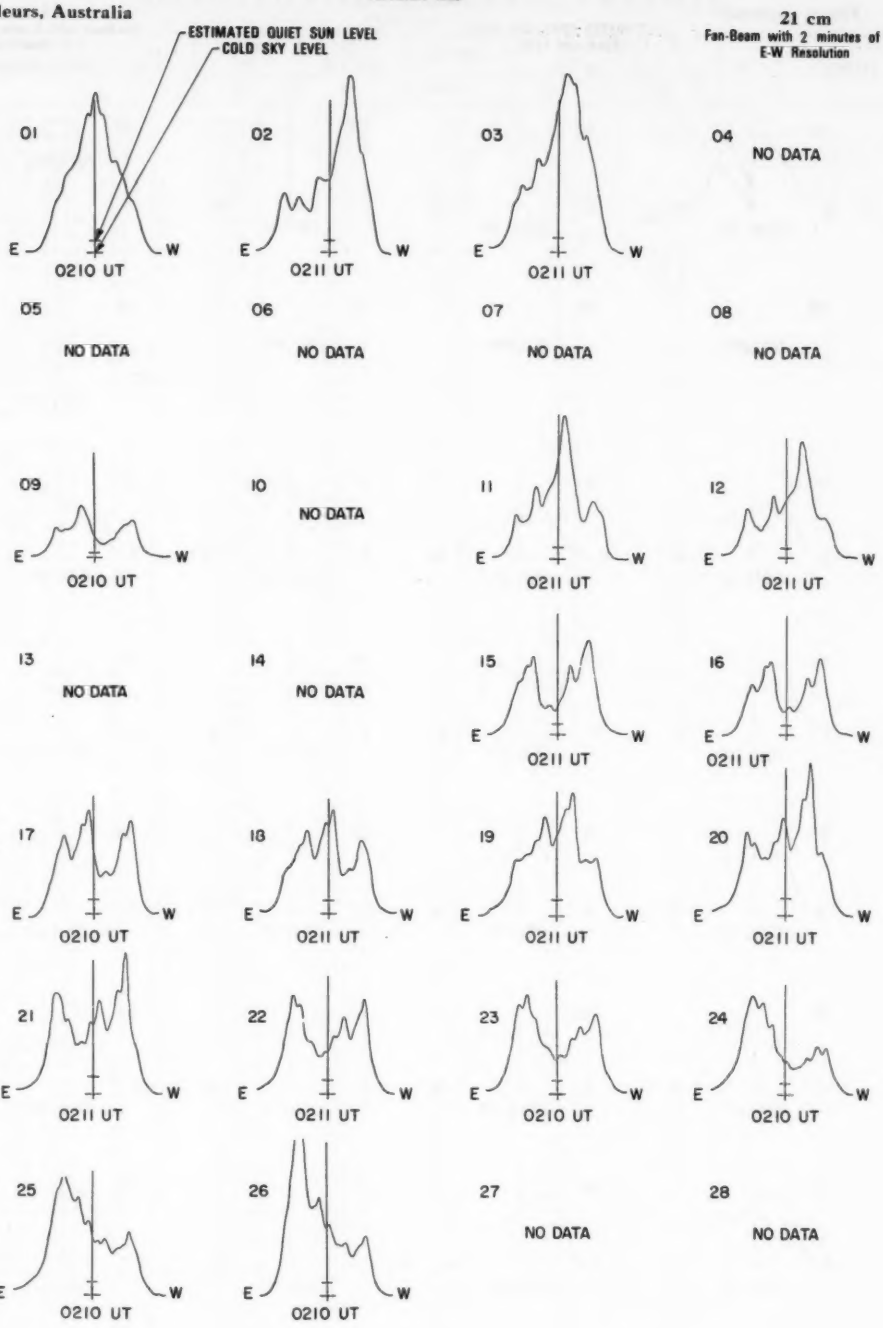


EAST-WEST SOLAR SCANS

FEBRUARY 1982

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

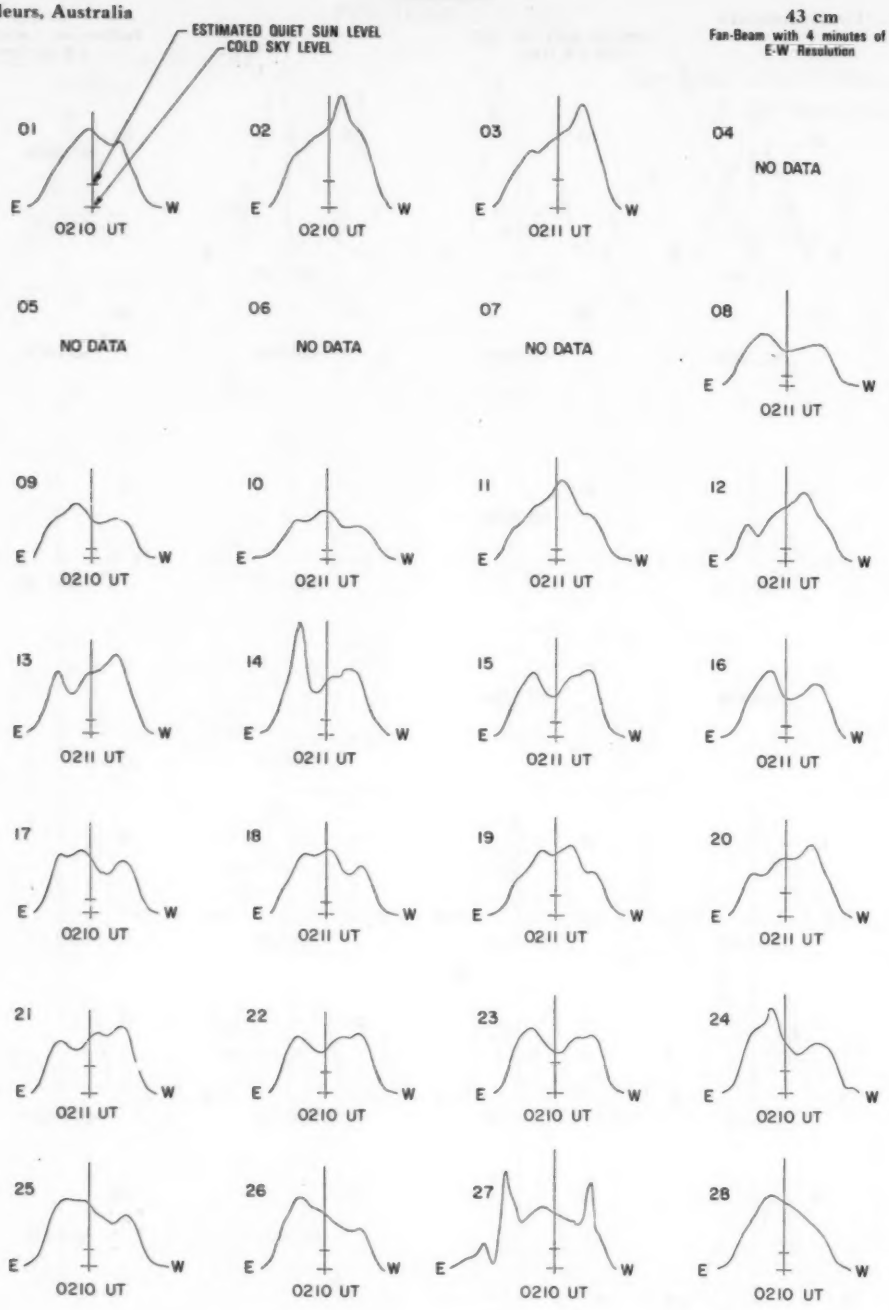


EAST-WEST SOLAR SCANS

FEBRUARY 1982

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2695	MANI	3 S	0033.0	0033.8	2.0	34.3	11.4		
	8800	MANI	3 S	0033.3	0033.8	1.7	98.6	32.9		
	3200	BERN	40 F	1102.0	1104.9	5.0	26.0			
	3200	BERN	3 S	1230.5	1232.1	2.0	17.0			
	3200	BERN	47 GB	1338.0	1403.0	100.0	1227.0			
	2800	OTTA	28 PRE	1345.0	1352.5	10.0D	23.0			
	2800	OTTA	47 GB	1355.0	1404	32.0	1305.0	496.0		
	8400	BERN	47 GB	1357.0	1403.0U	90.0	1522.0D			
	2800	OTTA	30 PBI	1427.0	1427	245.0	92.0	38.0		
	2800	OTTA	4 S/F	1435.0	1440.2	8.0	37.0	12.0		
	2800	OTTA	46F C	1450.0	1459	16.0	143.0	63.0		
	2800	OTTA	4 S/F	1517.5	1524	8.5	19.2	6.4		
	2800	OTTA	1 S	1535.0	1536.8	5.0	8.8	4.4		
	2800	OTTA	1 S	1654.6	1655.1	1.0	5.8			
	2800	OTTA	8 S	1850.5	1850.7	.5	6.2	3.1		
	2800	OTTA	8 S	1853.0	1853.5	.6	5.2			
	2800	OTTA	21 GRF	1930.0	1950	90.0	6.2	3.1		
	2800	OTTA	1 S	1935.0	1936.3	3.0	5.0	2.5		
	2695	PENT	3 S	2247.0	2248	4.0	13.6	6.0		
02	3200	BERN	3 S	1035.0	1040.0	19.0	64.0			
	2800	OTTA	240 R	1350.0	1355	5.0	10.2	4.0		
	2800	OTTA	23 GRF	1435.0	1805	460.0	42.4			
	2800	OTTA	1 S	1447.0	1447.1	1.0	2.6			
	2800	OTTA	21 GRF	1638.0	1645	15.0	11.4	2.7		
	2800	OTTA	3 S	1641.2	1642	2.0	14.0	7.0		
	2800	OTTA	1 S	1841.0	1842	5.0	6.8	3.4		
	2800	OTTA	21 GRF	1848.0	1858	35.0	9.2	3.1		
	2800	OTTA	46F C	1848.8	1851	5.0	36.0	15.0		
	2800	OTTA	3 S	1854.5	1854.6	1.0	18.6	4.6		
	2800	OTTA	21 GRF	2005.0	2035	55.0	13.4	5.0		
	2800	OTTA	4 S/F	2026.0	2030	6.0	28.4	10.0		
	2695	PENT	3 S	2219.0	2230	11.0D	11.0	3.6		
03	2695	MANI	47 GB	0101.7	0117.8	48.8	3784.0	1261.3		
	8800	PALE	49 GB	0104.5	0110.3	18.0	1100			
	8800	MANI	47 GB	0104.5	0118.5	45.5	2615.8	871.9		
	2695	PALE	49 GB	0105.0	0110.1	17.5	640			
	2695	LEAR	49 GB	0105.0	0110.1	31.0	1500			
	8800	LEAR	49 GB	0107.3	0110.1	28.7	2899			
	8800	PALE	49 GB	0124.1	0124.1	19.9	930			
	2695	PALE	49 GB	0124.1	0124.1	19.9	600			
	2695	PALE	20 GRF	0144.6	0146.6	14.5	49			
	8800	PALE	47 GB	0144.8	0146.6	14.5	110			
	8800	PALE	20 GRF	0201.1	0201.6	16.5	53			
	8800	LEAR	8 S	0537.0	0537.1	.1	11			
	2695	MANI	1 S	0537.0	0537.4	3.0	9.2	3.1		
	2695	LEAR	4 S/F	0537.6	0537.6	435.2	09			
	8800	LEAR	20 GRF	0629.8	0631.1	8.2	21			
	8800	ATHN	4 S/F	0703.6	0705.6	3.9	11			
	2695	ATHN	4 S/F	0704.3	0705.6	2.8	05			
	8800	LEAR	20 GRF	0813.8	0817.6	7.0	16			
	3200	BERN	4 S/F	0927.0	0934.5	25.0	90.0			
	2695	LEAR	47 GB	0929.6	0934.6	10.2	66			
	8800	LEAR	4 S/F	0932.3	0934.6	2.3	49			
	8400	BERN	4 S/F	0934.0	0934.5	25.0	60.0U			
	2695	LEAR	4 S/F	1005.3	1007.8	3.7	11			
	8800	LEAR	4 S/F	1005.5	1006.8	3.5	22			
	8800	ATHN	47 GB	1150.0	1152.0	12.8	139			
	2695	ATHN	47 GB	1150.0	1152.1	10.5	90			
	3200	BERN	4 S/F	1150.0	1152.3	12.0	130.0			
	8400	BERN	4 S/F	1150.2	1152.1	12.0	165.0U			
	2800	OTTA	20 GRF	1610.0	1625	30.0	3.8	1.9		
	2800	OTTA	21 GRF	1645.0	1720	120.0	12.6	6.3		
	2800	OTTA	46F C	1648.0	1652.2	20.0	128.0	53.0		
	8800	SGMR	49 GB	1650.3	1652.3	19.5	660			
	2695	SGMR	47 GB	1650.6	1652.6	16.9	110			
	8800	SGMR	8 S	1851.8	1852.0	1.2	20			
	2800	OTTA	4 S/F	2022.8	2023.5	5.0	39.0	9.8		
	8800	PALE	47 GB	2023.0	2023.3	4.1	87			
	2695	PALE	8 S	2023.1	2023.3	.7	39			
	8800	PALE	4 S/F	2041.8	2042.1	22.5	27			
	2695	PENT	27 RF	2100.0		120.0	5.8	4.9		
	2695	PENT	24 R	2100.0	2115	15.0	5.8	2.9		
	2695	PENT	24P R	2115.0		85.0	5.8			
	2695	PENT	26 FAL	2240.0	2300	20.0	-5.8	-2.9		
04	3200	BERN	45 C	0817.0	0831.1	70.0D	40.0			
	2695	MANI	3 S	0824.5	0833.0	10.8	24.2	8.1		
	8400	BERN	3 S	0828.0	0830.6	70.0D	16.0U			
	2800	OTTA	21 GRF	1300.0	1400	135.0	12.4			
	8400	BERN	45 C	1322.0	1332.9	22.0	320.0U			
	3200	BERN	45 C	1322.0	1337.5	22.0	280.0			
	2800	OTTA	46F C	1322.5	1336.5	20.0	203.0	80.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
04	2800	OTTA	46F C	1539.0	1541.8	6.0	125.0	44.0		
	3200	BERN	45 C	1540.0	1541.8	6.0	150.0			
	2800	OTTA	29 PBI	1545.0	1545	15.0	4.6	2.3		
	2800	OTTA	21 GRF	1640.0	1720	80.0	5.6			
	2800	OTTA	3 S	1643.0	1643.8	6.0	121.0	30.0		
	2800	OTTA	40 F	1656.9	1657.4	2.0	5.0			
	2800	OTTA	2 S/F	1718.0	1719	1.5	8.6	6.4		
	2800	OTTA	21 GRF	1845.0	1920	150.0	18.6	6.4		
	2800	OTTA	2 S/F	1850.0	1851	4.0	5.6	4.2		
	2800	OTTA	4 S/F	1856.5	1900.5	21.0	57.0	21.0		
	2800	OTTA	8 S	1919.9	1920	.5	5.6			
	2800	OTTA	3 S	1959.0	2000.9	4.0	13.8			
	2800	OTTA	45 C	2014.8	2017	3.2	11.0	5.0		
	2800	OTTA	3 S	2038.0	2038.7	2.0	17.8	6.0		
05	8400	BERN	3 S	0733.0	0733.3	2.0	25.0U			
	3200	BERN	4 S/F	0858.0	0906.3	16.0	230.0			
	2695	MANI	46 C	0904.0	0906.2	5.0D	218.4	72.8		
	8400	BERN	47 GB	0904.0	0906.6	16.0	811.0U			
	8800	MANI	47 GB	0904.0	0906.8	5.0D	572.3	190.8		
	3200	BERN	21 GRF	1151.0	1154.0	25.0D	11.0			
	8400	BERN	21 GRF	1153.0U	1154.0U	20.0U	18.0			
	2800	OTTA	4 S/F	1751.7	1754	8.3	15.2	5.0		
	2800	OTTA	20 GRF	1805.0	1833	120.0	6.8	3.0		
	2800	OTTA	20 GRF	2020.0	2045	60.0	3.4	1.7		
	2695	PENT	20 GRF	2215.0	2255	60.0	6.4	3.2		
06	8400	BERN	4 S/F	1104.0	1107.9	15.0D	55.0U			
	3200	BERN	4 S/F	1105.0	1107.9	12.0	46.0			
	3200	BERN	4 S/F	1223.0	1224.8	10.0D	62.0			
	8400	BERN	4 S/F	1224.0	1224.7	10.0D	124.0U			
	3200	BERN	3 S	1332.0	1334.2	6.0	40.0			
	2800	OTTA	3 S	1333.7	1334	3.0	22.0	7.5		
	8400	BERN	4 S/F	1334.0U	1334.1	5.0D	37.0U			
	2695	ATHN	47 GB	1422.5	1423.8	3.6	119			
	8800	ATHN	47 GB	1422.5	1423.8	2.5	210			
	8400	BERN	4 S/F	1423.0	1424.5	6.0	212.0U			
	2695	SGMR	47 GB	1423.0	1424.5	3.6	139			
	3200	BERN	4 S/F	1423.0	1424.5	9.0	200.0			
	2800	OTTA	3 S	1423.0	1424.6	4.0	166.0	36.4		
	8800	SGMR	47 GB	1424.1	1424.5	1.0	189			
	2800	OTTA	29 PBI	1427.0	1427	9.0	8.4	2.8		
	3200	BERN	4 S/F	1531.5	1533.5	5.0	203.0			
	2800	OTTA	4 S/F	1532.0	1533.5	5.0	149.0	33.0		
	2695	SGMR	47 GB	1532.3	1533.5	4.2	200			
	8800	SGMR	47 GB	1532.8	1533.3	1.7	169			
	8400	BERN	45 C	1533.0	1533.3	8.0	165.0U			
	2695	ATHN	47 GB	1533.0	1533.6	20.1	180			
	8800	ATHN	47 GB	1533.0	1533.6	20.1	91			
	8800	SGMR	4 S/F	1539.0	1539.6	2.6	32			
	2800	OTTA	8 S	1539.1	1539.5	.8	3.4			
	8800	SGMR	8 S	1640.5	1640.6	.3	29			
	2800	OTTA	8 S	1640.5	1640.7	.5	2.2	1.1		
	2800	OTTA	1 S	1701.5	1702	1.0	4.4	2.2		
	2800	OTTA	8 S	1720.0	1720.1	.3	5.6			
	2800	OTTA	21 GRF	1720.0	1745	100.0	9.0	6.3		
	8800	SGMR	47 GB	1725.8	1728.5	13.5	400			
	2800	OTTA	3 S	1726.0	1729	11.0	73.0	20.0		
	2695	SGMR	47 GB	1727.5	1728.6	4.8	64			
	2800	OTTA	4 S/F	1753.0	1755	7.0	23.0	7.7		
	2695	SGMR	8 S	1754.3	1754.3	1.5	17			
	8800	SGMR	4 S/F	1754.6	1755.6	2.7	30			
	2800	OTTA	2 S/F	1817.8	1818.5	5.0	6.8			
	2800	OTTA	240 R	1930.0	1945	15.0	3.8	1.9		
	2800	OTTA	1 S	1948.6	1949	1.0	4.4	2.2		
	2800	OTTA	20 GRF	2005.0	2025	35.0	3.8			
	8800	SGMR	8 S	2006.3	2006.3	.5	36			
	2800	OTTA	8 S	2049.8	2049.8	.5	124.0			
	8800	SGMR	49 GB	2055.0	2058.3	12.1	1300			
	2800	OTTA	47 GB	2055.0	2058.5	7.0	570.0	188.0		
	2695	PALE	49 GB	2055.1	2058.1	9.2	780			
	2695	SGMR	49 GB	2055.1	2058.3	6.0	660			
	8800	PALE	49 GB	2055.3	2058.3	10.8	1600			
	2800	OTTA	30 PBI	2102.0	2102	14.0	11.2	3.0		
	2800	OTTA	1 S	2103.5	2104	1.5	8.4	4.0		
	2695	PENT	21 GRF	2125.0	2141	60.0	13.0	6.0		
	8800	PALE	4 S/F	2139.3	2141.5	7.0	42			
	2695	PENT	45 C	2204.5	2205	2.0	16.0			
	2695	PENT		2350.0	0010	20.0D	213.0			
	2695	MANI	46 C	2352.0	0009.0	25.4	255.1	85.0		
	2695	LEAR	47 GB	2352.6	2353.3	17.9	69			
	8800	LEAR	47 GB	2353.0	2355.3	17.5	119			
	8800	MANI	46 C	2353.2	0007.0	22.8	190.4	63.5		
07	2695	MANI	3 S	0033.5	0034.1	1.5	32.7	10.9		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
07	2695	MANI	3	S	0322.1	0323.7	4.9	12.5	4.2		
	8800	MANI	3	S	0322.3	0323.7	3.5	53.0	17.7		
	2695	MANI	4	S/F	0737.5	0738.3	3.5	17.9	6.0		
	2695	MANI	4	S/F	0808.8	0811.5	7.2	28.6	9.5		
	8800	MANI	4	S/F	0811.0	0811.5	2.5	53.0	17.7		
	2800	OTTA	1	S	1344.2	1344.5	.3D	4.0	1.8		
	2800	OTTA	8	S	1536.7	1536.7	.1	17.0			
	2800	OTTA	8	S	1547.6	1547.6	.3	75.0			
	2800	OTTA	22	GRF	1730.0	1825	130.0	8.4	4.0		
	2800	OTTA	4	S/F	2052.0	2058.3	8.5	118.0	42.0		
	2800	OTTA	29	PBI	2100.5	2100.5	40.0	17.0	5.6		
08	2695	MANI	3	S	0031.4	0032.6	3.3	17.2	5.7		
	8800	LEAR	8	S	0139.1	0139.3	.4	13			
	8800	PALE	47	GB	0140.8	0141.5	8.0	260			
	2695	MANI	4	S/F	0148.5	0150.1	2.2	160.7	53.6		
	8800	MANI	3	S	0241.5	0242.2	1.5	96.4	32.1		
	8800	LEAR	47	GB	0241.6	0242.0	4.5	87			
	2695	LEAR	47	GB	0241.6	0242.1	1.2	81			
	2695	MANI	3	S	0241.6	0242.3	1.9	87.4	29.1		
	3200	BERN	3	S	0803.0	0805.4	30.0D	47.0			
	8800	MANI	4	S/F	0803.8	0805.4	5.7	371.1	123.7		
	2695	MANI	4	S/F	0804.3	0805.5	6.7	21.2	7.1		
	8400	BERN	4	S/F	0804.5	0805.4	30.0D	161.0U			
	8400	BERN	21	GRF	1001.0	1021.1	50.0	51.0U			
	3200	BERN	20	GRF	1001.0	1035.1	50.0D	12.0			
	8800	LEAR	47	GB	1007.0	1008.3	9.6	54			
	8800	ATHN	49	GB	1245.3	1248.3	13.8	1800			
	8400	BERN	47	GB	1246.0	1250.1U	20.0	1360.0U			
	3200	BERN	47	GB	1247.5	1250.0	20.0	1068.0			
	2695	ATHN	49	GB	1248.6	1250.0	11.5	980			
	8800	SGMR	49	GB	1249.5	1250.0	12.8	1300			
	2695	SGMR	49	GB	1249.5	1250.0	5.8	880			
	8800	ATHN	4	S/F	1313.6	1314.1	2.7	20			
	8800	SGMR	8	S	1314.6	1314.8	.2	20			
	3200	BERN	4	S/F	1359.0	1406.6	8.0	41.0			
	8400	BERN	4	S/F	1359.0	1412.8	13.8D	88.0			
	8800	SGMR	8	S	1404.0	1404.1	.1	37			
	8800	ATHN	8	S	1404.1	1404.1	1.0	36			
	8800	ATHN	47	GB	1405.1	1406.6	6.5	79			
	2695	SGMR	8	S	1406.0	1406.3	1.3	33			
	2695	ATHN	4	S/F	1406.0	1406.6	3.3	27			
	2800	OTTA	21	GRF	1500.0	1610	150.0	11.2			
	8800	ATHN	47	GB	1547.6	1549.1	8.0	360			
	2695	ATHN	47	GB	1547.8	1549.1	7.8	110			
	2800	OTTA	4	S/F	1606.0	1606.6	1.0	14.0			
	2695	SGMR	8	S	1606.3	1606.6	2.0	23			
	2800	OTTA	1	S	1656.0	1658	6.0	8.4	4.0		
	2800	OTTA	21	GRF	1820.0	1855	65.0	6.4	3.6		
	8800	SGMR	8	S	1859.8	1900.5	1.5	22			
	2800	OTTA	20	GRF	1900.0	1900.5	9.0	14.6	4.8		
	2800	OTTA	1	S	1952.0	1952.3	2.0	6.4	4.4		
	2800	OTTA	21	GRF	2015.0	2025	35.0	5.2	2.8		
	2800	OTTA	1	S	2016.0	2017.5	3.0	8.4	3.0		
	2695	SGMR	8	S	2121.5	2121.8	1.3	20			
	2800	OTTA	4	S/F	2121.5	2122	2.0	16.2	5.4		
	8800	SGMR	8	S	2121.6	2121.8	.5	28			
	2800	OTTA	1	S	2127.5	2127.8	1.0	3.4	1.7		
09	2695	MANI	4	S/F	0043.5	0046.8	12.0	51.4	17.1		
	8800	MANI	4	S/F	0043.5	0047.0	8.5	53.7	17.9		
	8800	MANI	3	S	0140.2	0141.8	4.3	311.5	103.8		
	2695	MANI	3	S	0141.0	0141.8	2.0	10.3	3.4		
	8800	MANI	4	S/F	0336.8	0340.2	6.7	68.8	22.9		
	2695	MANI	4	S/F	0337.0	0340.2	6.5	20.0	6.6		
	2695	MANI	3	S	0404.0	0407.0	11.0	225.1	75.0		
	8800	MANI	47	GB	0405.4	0407.0	9.6	736.2	245.4		
	2695	MANI	4	S/F	0711.2	0712.5	13.8	73.8	24.6		
	8800	MANI	3	S	0711.5	0712.5	3.3	178.9	59.6		
	3200	BERN	3	S	0711.7	0712.4	3.0	165.0			
	8400	BERN	45	C	0846.0	0910.1	90.0U	35.0U			
	3200	BERN	45	C	0846.0	0923.6	90.0U	13.0			
	8400	BERN	20	GRF	1104.0	1111.5	35.0D	30.0U			
	3200	BERN	21	GRF	1106.0	1109.0	35.0D	34.0			
	8400	BERN	45	C	1354.0	1408.8	36.0	80.0U			
	2800	OTTA			1400.0	1402	2.0D	26.0			
	3200	BERN	45	C	1400.0	1402.6	30.0	48.0			
	2800	OTTA	20	GRF	1705.0	1715	40.0	4.2	2.8		
	2800	OTTA	20	GRF	1810.0	1840	60.0	3.4	2.0		
	2695	PENT	3	S	2003.5	2004.2	7.0	80.0	18.0		
	2800	OTTA	20	GRF	2125.0	2130	85.0	7.2	3.6		
10	2695	MANI	47	GB	0049.5	0059.3	50.0	798.6	266.2		
	2695	LEAR	49	GB	0052.1	0057.6	32.9	570			
	8800	LEAR	49	GB	0052.8	0056.3	32.2	1899			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
10	8800	MANI	47	GB	0053.5	0056.7	43.5	2121.7	707.2		
	2695	PALE	20	GRF	0127.0	0127.3	.8	20			
	8800	MANI	3	S	0227.0	0228.0	2.0	110.5	36.8		
	2695	MANI	3	S	0227.0	0228.0	1.5	61.9	20.6		
	8800	PALE	47	GB	0227.1	0227.6	1.2	100			
	2695	PALE	8	S	0227.3	0227.6	.5	47			
	8800	LEAR	47	GB	0227.5	0227.6	.3	53			
	8800	LEAR	47	GB	0504.8	0505.1	1.2	59			
	8800	MANI	3	S	0505.8	0506.0	.5	68.4	22.8		
	8800	LEAR	47	GB	0553.1	0553.5	1.2	72			
	8800	MANI	3	S	0553.5	0553.9	1.5	78.9	26.3		
	2695	MANI	3	S	0553.7	0553.9	.8	11.6	3.9		
	3200	BERN	3	S	0701.0	0701.2	1.0	25.0			ONLY PAPER REC
	8400	BERN	3	S	0803.5	0805.0	2.0	28.0U			
	8800	LEAR	4	S/F	0804.0	0805.0	3.0	37			
	8400	BERN	20	GRF	0846.0	0847.0U	13.0U	20.0U			
	2695	ATHN	4	S/F	0944.1	0945.1	4.0	37			
	8800	ATHN	47	GB	0944.1	0945.3	4.0	119			
	2695	LEAR	8	S	0944.5	0945.1	1.3	41			
	8800	LEAR	47	GB	0944.5	0945.5	1.6	110			
	8400	BERN	4	S/F	1410.0	1412.1	8.0	30.0U			
	3200	BERN	4	S/F	1410.0	1413.6	9.0D	16.0			
	8800	SGMR	4	S/F	1411.0	1413.1	2.1	27			
	2695	SGMR	8	S	1413.0	1413.1	.3	16			
	2800	OTTA	20	GRF	1420.0	1450	135.0D	9.6			
	2800	OTTA	1	S	1717.2	1717.9	2.0	8.0	3.0		
	2800	OTTA	1	S	1721.3	1721.8	1.0	3.8	1.9		
	2800	OTTA	21	GRF	1810.0	2055	360.0D	19.4			
	2800	OTTA	23	GRF	1838.0	1855	70.0	43.0	14.2		
	2800	OTTA	8	S	1838.2	1838.5	.6	17.2	8.6		
	2800	OTTA	4	S/F	1848.0	1852.2	10.0	162.0	57.0		
	2695	SGMR	47	GB	1848.8	1852.1	16.2	139			
	8800	SGMR	47	GB	1849.3	1851.6	15.7	200			
	2800	OTTA	4	S/F	1910.0	1910.5	2.0	33.0	8.6		
	8800	PALE	20	GRF	1912.6	1913.5	7.2	39			
	2695	PALE	20	GRF	1922.1	1922.8	5.0	21			
	2800	OTTA	4	S/F	2000.0	2001	7.0	178.0	30.0		
	2695	SGMR	49	GB	2000.1	2000.8	2.2	139			
	2695	PALE	49	GB	2000.1	2000.8	2.0	169			
	8800	SGMR	49	GB	2000.1	2000.8	2.0	600			
	8800	PALE	49	GB	2000.3	2000.8	1.5	700			
	2695	PENT	3	S	2008.8	2008.9	3.0	22.0	8.0		
	2800	OTTA	45	C	2015.8	2018	6.0	15.2	5.0		
	2695	PENT	4	S/F	2153.0	2154.4	3.0	80.0	20.0		
	8800	PALE	8	S	2154.1	2154.3	.5	30			
	2695	PALE	47	GB	2154.1	2154.3	.5	63			
	8800	PALE	47	GB	2213.8	2214.6	8.7	70			
	2695	PENT	4	S/F	2327.2	2327.6	2.0	21.8	6.0		
	8800	PALE	8	S	2327.3	2327.5	.3	26			
	2695	MANI	3	S	2327.4	2328.2	2.6	12.8	4.3		
	8800	MANI	3	S	2327.4	2328.3	1.6	25.1	8.4		
	2695	PENT	1	S	2336.5	2337	1.5	6.6	3.3		
11	2695	MANI	8	S	0106.6	0106.9	.5	89.9	30.0		
	2695	MANI	3	S	0421.0	0422.5	2.0	13.5	4.5		
	3200	BERN	4	S/F	1208.0	1211.4	4.0	14.0			
	8400	BERN	3	S	1209.0	1211.9	10.0D	20.0U			
	3200	BERN	3	S	1341.0	1346.9	10.0	44.0			
	2800	OTTA	4	S/F	1344.0	1345.3	3.0	26.0	6.6		
	8400	BERN	3	S	1345.0	1345.5	5.0	75.0U			
	2800	OTTA	20	GRF	1425.0	1430	25.0	4.0	2.0		
	2800	OTTA	32	ABS	1608.0		18.0	-4.4	-3.3		
	2800	OTTA	1	S	1632.3	1633	1.5	6.6	2.2		
	2800	OTTA	3	S	1634.5	1635	2.0	14.6	6.0		
	2800	OTTA	27	RF	1640.0		70.0	5.0	4.2		
	2800	OTTA	24	R	1640.0	1650	10.0	5.0	2.8		
	2800	OTTA	24P	R	1650.0		45.0	5.0			
	2800	OTTA	26	FAL	1735.0	1750	15.0	-5.0	-2.6		
	2800	OTTA	21	GRF	1825.0	1840	30.0	5.0	2.5		
	2800	OTTA	1	S	1833.0	1834.2	3.0	8.0	3.0		
	2800	OTTA	20	GRF	1910.0	1922	40.0	3.0	1.5		
	2800	OTTA	21	GRF	2030.0	2105	85.0	8.6			
	2800	OTTA	1	S	2034.0	2036	3.0	3.4	1.7		
	2800	OTTA	1	S	2057.0	2100	7.0	8.0	4.0		
	2800	OTTA	1	S	2149.0	2149.3	2.0	2.8	1.4		
	2695	PENT	1	S	2307.0	2307.5	2.0	2.2	1.1		
12	8800	MANI	3	S	0550.0	0550.5	1.5	103.5	34.5		
	2695	MANI	3	S	0550.0	0550.5	1.5	25.2	8.4		
	2800	OTTA	1	S	1340.5	1340.6	1.0	5.0	2.0		
	2800	OTTA	20	GRF	1635.0	1705	190.0	24.0	8.8		
	2800	OTTA	8	S	2020.0	2020.3	.6	3.0			
	2800	OTTA	1	S	2026.7	2027.6	4.0	5.2	2.6		
	2800	OTTA	28	PRE	2120.0	2126.5	12.0	16.0	9.4		
	2800	OTTA	4	S/F	2132.0	2135.5	14.0	270.0	70.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
12	2695	PENT	30 PBI	2146.0	2146	80.0	22.4	11.0		
	2695	PENT	4 S/F	2155.5	2157.7	9.0	141.0	28.0		
	2695	PENT	8 S	2245.9	2245.9	.1	3.8			
13	8800	LEAR	20 GRF	0335.0	0336.5	6.0	10			
	8800	LEAR	4 S/F	0402.6	0403.0	3.0	41			
	2800	OTTA	23 GRF	1425.0	1635	455.0	15.8			
	2800	OTTA	8 S	1512.6	1512.7	.5	2.2			
	8800	SGMR	20 GRF	1645.0	1645.1	.6	27			
	8800	PALE	8 S	1934.0	1934.8	4.1	26			
	2800	OTTA	3 S	1958.0	1958.2	1.0	16.6	8.0		
	2695	PALE	8 S	1958.1	1958.1	.2	19			
	2800	OTTA	8 S	2039.8	2039.9	.3	3.6	1.8		
	8800	PALE	47 GB	2053.1	2054.0	4.0	130			
	2800	OTTA	1 S	2113.3	2113.7	1.0	3.2			
	2695	PENT	8 S	2218.0	2218.1	.3	3.8	1.9		
	2695	PENT	4 S/F	2331.9	2332.1	2.0	20.0	7.0		
	2695	LEAR	8 S	2332.0	2332.1	1.0	23			
	2695	MANI	4 S/F	2332.0	2332.5	1.0	36.7	12.2		
	2695	MANI	3 S	2351.9	2352.3	1.1	16.3	5.4		
14	2695	PENT	4 S/F	0002.5	0004	3.0	20.4	9.0		
	2695	LEAR	4 S/F	0002.6	0004.0	3.4	31			
	8800	LEAR	4 S/F	0003.0	0004.0	3.0	31			
	8800	LEAR	8 S	0013.6	0014.6	1.5	20			
	8800	PALE	8 S	0013.8	0014.0	.3	20			
	2695	PALE	4 S/F	0015.0	0016.0	4.6	23			
	8800	LEAR	8 S	0100.6	0101.1	1.0	34			
	8800	PALE	8 S	0100.6	0101.1	.9	39			
	2695	LEAR	4 S/F	0117.0	0121.0	9.0	08			
	8800	PALE	8 S	0120.6	0120.8	.2	20			
	2695	MANI	3 S	0120.8	0121.8	2.7	16.3	5.4		
	2695	LEAR	4 S/F	0140.1	0144.1	4.5	18			
	8800	PALE	47 GB	0140.3	0141.1	11.8	51			
	8800	LEAR	4 S/F	0140.5	0141.0	10.1	40			
	8800	LEAR	4 S/F	0218.8	0222.6	6.2	19			
	8800	LEAR	47 GB	0343.3	0344.0	6.7	290			
	8800	PALE	47 GB	0343.6	0344.0	1.2	189			
	8800	MANI	3 S	0343.7	0344.3	4.3	281.7	93.9		
	2695	MANI	3 S	0407.7	0408.8	2.8	14.9	5.0		
	8800	LEAR	8 S	0540.8	0541.1	1.0	16			
	8800	LEAR	8 S	0547.1	0547.5	1.4	16			
	8800	LEAR	8 S	0636.3	0636.5	.3	16			
	2695	ATHN	47 GB	0812.8	0813.6	2.7	92			
	8800	ATHN	47 GB	0812.8	0813.6	2.7	300			
	3200	BERN	4 S/F	0813.0	0813.6	3.0	157.0			ONLY PAPER REC
	8800	LEAR	47 GB	0813.0	0813.6	4.1	390			
	2695	LEAR	47 GB	0813.1	0813.6	1.7	91			
	2695	MANI	3 S	0813.7	0814.3	2.3	81.2	27.1		
	8800	MANI	3 S	0813.8	0814.3	1.7	324.0	108.0		
	2695	ATHN	47 GB	0939.0	0939.3	8.6	119			
	8800	ATHN	47 GB	0939.0	0939.3	10.8	340			
	3200	BERN	4 S/F	0940.0	0940.5	14.0	371.0			ONLY PAPER REC
	8800	LEAR	47 GB	0940.1	0940.3	1.2	480			
	2695	LEAR	47 GB	0940.1	0940.5	2.2	119			
	2800	OTTA	2 S/F	1256.5	1257	2.5	4.2	2.0		
	2800	OTTA	2 S/F	1343.5	1344.3	2.0	3.4			
	3200	BERN	3 S	1402.4	1403.2	2.0	19.0			ONLY PAPER REC
	2800	OTTA	21 GRF	1545.0	1610	50.0	3.6	1.8		
	2800	OTTA	1 S	1554.0	1555.3	3.0	3.4	1.5		
	2800	OTTA	2 S/F	1657.5	1658	2.0	7.6	2.6		
	8800	SGMR	47 GB	1731.1	1731.3	.7	56			
	2695	PENT	240 R	1955.0	2008	13.0D	7.4	2.0		
	2800	OTTA	21 GRF	2010.0	2046	95.0	13.0	6.2		
	2800	OTTA	4 S/F	2011.0	2017	19.0	20.0	9.0		
	8800	SGMR	8 S	2014.6	2015.0	1.0	33			
	2695	SGMR	4 S/F	2014.6	2016.6	4.5	26			
	2695	SGMR	8 S	2023.6	2024.0	.4D	17			
	2800	OTTA	8 S	2044.0	2044.2	.6	6.0	3.0		
	2695	PENT	21 GRF	2200.0	2222	100.0	5.2	3.0		
	2695	PENT	3 S	2311.2	2311.7	1.0	15.0	3.8		
	2695	LEAR	8 S	2311.5	2311.6	.1	18			
	2695	PENT	8 S	2345.2	2345.3	.8	8.2	2.0		
15	2695	MANI	4 S/F	0321.5	0323.3	4.5	27.8	9.3		
	2695	PALE	4 S/F	0322.5	0323.0	12.6	30			
	2695	LEAR	4 S/F	0322.8	0323.3	8.2	20			
	8800	LEAR	4 S/F	0325.8	0329.8	9.3	20			
	8800	PALE	8 S	0330.6	0331.0	1.2	24			
	2695	LEAR	8 S	0633.3	0634.0	1.8	10			
	8800	LEAR	8 S	0633.6	0634.1	2.0	10			
	3200	BERN	4 S/F	0719.0	0722.3	6.0	35.0			ONLY PAPER REC
	2695	MANI	4 S/F	0719.0	0722.7	6.0	36.6	12.2		
	2695	ATHN	4 S/F	0719.5	0722.8	6.0	37			
	2695	LEAR	4 S/F	0720.3	0722.3	4.3	36			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
15	8800	ATHN	4 S/F	0721.3	0723.5	6.7	21			
	8800	MANI	3 S	0721.5	0723.0	3.5	27.4	9.1		
	8800	LEAR	4 S/F	0721.6	0722.3	4.0	23			
	8800	ATHN	47 GB	1320.0	1320.8	2.1	58			
	3200	BERN	4 S/F	1320.0	1321.2	2.0	278.0			ONLY PAPER REC
	2800	OTTA	4 S/F	1320.0	1321.3	2.0	397.0			
	2695	ATHN	47 GB	1320.0	1321.3	2.0	260			
	2695	SGMR	47 GB	1320.3	1321.1	1.3	330			
	8800	SGMR	47 GB	1320.6	1321.0	.9	60			
	2800	OTTA	20 GRF	1625.0	1638	20.0	2.4	1.2		
	2800	OTTA	1 S	1648.0	1649	2.5	2.2	1.1		
	2800	OTTA	22 GRF	1720.0	1723	18.0	5.0	2.3		
	2800	OTTA	8 S	1803.5	1803.6	.5	6.6			
	2800	OTTA	21 GRF	1937.0	2050	130.0	3.2			
	2800	OTTA	8 S	1939.0	1939.3	.6	4.6			
	2800	OTTA	8 S	1941.6	1941.6	.5	4.6			
	8800	SGMR	8 S	2000.0	2000.1	.3	30			
	2695	PENT	2 S/F	2011.9	2012.1	2.0	5.6	2.4		
	2695	PENT	1 S	2232.5	2233	2.5	5.0	2.2		
16	2695	MANI	4 S/F	0102.0	0102.8	5.5	85.6	28.5		
	2695	LEAR	8 S	0102.3	0102.3	.2	36			
	8800	LEAR	4 S/F	1002.8	1004.3	3.8	19			
	2695	LEAR	4 S/F	1002.8	1004.6	4.0	23			
	8800	LEAR	8 S	1003.3	1004.3	1.2	19			
	2695	LEAR	8 S	1003.5	1004.6	1.8	23			
	8800	LEAR	4 S/F	1020.1	1021.1	3.0	37			
	2695	LEAR	4 S/F	1020.1	1021.3	3.0	22			
	2695	ATHN	8 S	1246.6	1246.8	.5	11			
	2800	OTTA	1A S	1250.8	1252.3	4.0	7.4	3.6		
	2800	OTTA	8 S	1252.0	1252.3	.3	8.4			
	2695	SGMR	8 S	1252.1	1252.3	1.4	19			
	2800	OTTA	4 S/F	1512.0	1515.2	6.0	21.2	8.3		
	2695	SGMR	4 S/F	1513.3	1515.1	2.2	38			
	8800	SGMR	8 S	1514.8	1514.8	.2	13			
	2800	OTTA	29 PBI	1518.0	1518	52.0	5.6	3.0		
	2800	OTTA	1 S	1631.0	1631.5	1.0	3.0			
	8800	SGMR	4 S/F	1631.3	1631.6	2.7	32			
	2800	OTTA	20 GRF	1700.0	1712	45.0	2.6	1.8		
	2695	PENT	20 GRF	1755.0	1810	45.0	2.0			
	2800	OTTA	1 S	1857.0	1858.8	8.0	5.6	1.8		
	8800	SGMR	8 S	1859.1	1859.8	.9	21			
	2800	OTTA	27 RF	1910.0		150.0	2.6	2.4		
	2800	OTTA	24 R	1910.0	1920	10.0	2.6	1.5		
	2800	OTTA	24P R	1920.0		130.0	2.6			
	2800	OTTA	26 FAL	2130.0	2140	10.0	-2.6	-1.5		
	2695	PENT	20 GRF	2205.0	2245	75.0	4.8			
17	2695	MANI	4 S/F	0745.4	0746.9	10.6	64.4	21.5		
	8800	MANI	3 S	0746.0	0747.0	3.0	143.6	47.9		
	3200	BERN	4 S/F	0746.2	0746.8	14.0	95.0			ONLY PAPER REC
	3200	BERN	4 S/F	0956.0	0959.5	9.0	79.0			ONLY PAPER REC
	2800	OTTA	20 GRF	1417.0	1419	13.0	4.4	1.6		
	2800	OTTA	8 S	1915.3	1915.7	.7	2.6	1.3		
	2800	OTTA	3 S	1943.5	1945	3.5	25.6	9.0		
	2800	OTTA	29 PBI	1947.0	1947	7.0	2.8	1.4		
	2800	OTTA	46F C	2133.5	2142	11.5	71.0	29.2		
	2800	OTTA	29 PBI	2145.0	2145	70.0	13.2	4.6		
	2695	PENT	40 F	2330.0	2331.2	7.0	26.0			
	2695	MANI	4 S/F	2330.7	2331.3	6.3	27.6	9.2		
18	2695	MANI	3 S	0320.2	0321.0	1.8	10.9	3.6		
	8800	MANI	3 S	0320.5	0321.2	2.5	44.8	14.9		
	2695	MANI	3 S	0443.7	0445.8	4.6	14.2	4.7		
	2695	MANI	2 S/F	0500.6	0502.8	3.4	9.8	3.3		
	2695	MANI	4 S/F	0902.8	0903.7	5.2	195.0	65.0		
	8800	MANI	4 S/F	0903.0	0903.4	5.0	74.4	24.8		
	2800	OTTA	240AR	1303.0	1308	5.0	9.4	4.2		
	2800	OTTA	46F C	1314.0	1318.9	9.0	455.0	65.0		
	2800	OTTA	46F C	1314.5	1315.7	3.0	27.8	7.0		
	2800	OTTA	29 PBI	1323.0	1323	100.0	12.2	5.0		
	2800	OTTA	3 S	1830.5	1831	1.2	17.4	5.4		
	2800	OTTA	240 R	2035.0	2050	15.0	5.2	2.6		
	2800	OTTA	20 GRF	2053.0	2115	22.0D	3.4	1.7		
	2800	OTTA	8 S	2144.0	2144.2	.3	4.4			
	2695	PENT	4 S/F	2231.2	2232.9	1.8	10.4	7.8		
	8800	LEAR	47 GB	2329.8	2333.1	3.3D	90			
	2695	MANI	4 S/F	2331.0	2349.0	18.0D	49.2	16.4		
	8800	MANI	3 S	2331.5	2334.3	9.5	177.6	59.2		
	2695	PENT	4 S/F	2332.0	2334	5.0	52.0	26.0		
	2695	LEAR	8 S	2332.3	2333.3	1.0D	30			
	8800	PALE	47 GB	2332.3	2333.8	12.0	130			
	2695	PALE	8 S	2333.6	2333.8	.5	24			
	2695	PENT	30 PBI	2337.0	2337	40.0D	17.4			
	2695	PENT	46F C	2341.0	2341.7	3.0	75.0	15.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
18	2695	LEAR	47 GB	2341.3	2341.8	2.3	55			
	8800	PALE	8 S	2346.3	2347.6	1.5	19			
	8800	PALE	8 S	2349.8	2350.6	.8D	18			
19	8800	PALE	8 S	0002.1	0003.1	1.0D	18			
	8800	PALE	8 S	0020.1	0020.6	.5D	20			
	2695	MANI	3 S	0052.0	0053.8	2.2	14.8	4.9		
	8800	PALE	8 S	0053.8	0054.6	.8D	19			
	8800	LEAR	20 GRF	0433.1	0433.8	2.9	20			
	8800	MANI	3 S	0451.5	0454.0	6.5	50.2	16.7		
	2695	MANI	3 S	0452.0	0453.7	5.0	16.8	5.6		
	2695	LEAR	4 S/F	0452.0	0453.8	4.0	18			
	8800	LEAR	4 S/F	0452.6	0454.0	7.7	40			
	2695	MANI	3 S	0555.0	0556.3	4.0	39.2	13.1		
	8800	MANI	3 S	0555.2	0556.1	4.3	92.9	31.0		
	8800	LEAR	47 GB	0556.1	0556.6	3.4	87			
	2695	LEAR	8 S	0556.3	0556.8	1.7	37			
	2800	OTTA	3 S	1324.0	1327.7	11.0	205.0	79.0		
	8800	SGMR	47 GB	1324.6	1327.1	18.5	100			
	2695	SGMR	47 GB	1325.1	1327.5	18.0	200			
	2800	OTTA	30 PBI	1335.0	1335	270.0	27.0	9.0		
	2800	OTTA	4 S/F	1337.0	1341.2	10.0	75.0	20.0		
	2695	SGMR	20 GRF	1343.1	1349.8	16.8	47			
	8800	SGMR	47 GB	1343.3	1349.8	16.8	71			
	2800	OTTA	45 C	1347.8	1349.2	2.5	19.0	8.0		
	2800	OTTA	4 S/F	1357.7	1358.6	2.3	37.0	18.5		
	2800	OTTA	21 GRF	1515.0	1535	100.0	7.0	3.5		
	2800	OTTA	1 S	1522.5	1523.9	3.0	7.0	2.8		
	8800	SGMR	8 S	1523.3	1524.0	.7D	17			
	2800	OTTA	1 S	1532.0	1533.5	4.0	8.4	2.8		
	2800	OTTA	45 C	1619.8	1620.1	3.0	7.8	3.0		
	2800	OTTA	8 S	1716.7	1716.8	.3	3.6			
	2800	OTTA	1 S	1745.0	1747	9.0	2.2	0.8		
	2800	OTTA	240AR	1850.0	1910	20.0	3.6	1.8		
	2800	OTTA	2 S/F	1903.2	1904	5.0	8.4	2.8		
	2695	SGMR	47 GB	1904.5	1904.6	.1	51			
	2800	OTTA	3 S	1913.0	1914	5.0	10.6	2.6		
	2800	OTTA	20 GRF	2005.0	2011	85.0	5.2	2.2		
	2800	OTTA	1 S	2141.5	2143	2.5	5.0	2.5		
	2695	PENT	20 GRF	2210.0	2220	40.0	5.0	2.6		
	8800	PALE	47 GB	2322.3	2322.6	.5	200			
20	8400	BERN	42 SER	0916.0	0924.6	60.0	417.0U			
	8800	LEAR	47 GB	0918.1	0924.6	27.7	480			
	8800	ATHN	47 GB	0919.1	0924.1	11.2	390			
	2695	ATHN	47 GB	0919.8	0924.3	10.5	270			
	2695	LEAR	47 GB	0920.3	0924.6	25.5	300			
	8800	MANI	4 S/F	0923.7	0924.2	2.3	145.5	48.5		
	2695	MANI	3 S	0923.7	0925.1	2.3	63.1	21.0		
	2695	ATHN	47 GB	0930.3	0933.6	8.7	150			
	8800	ATHN	47 GB	0930.3	0933.6	8.7	160			
	8800	SGMR	8 S	1256.1	1256.1	.2	22			
	2800	OTTA	1 S	1515.1	1515.5	2.0	4.4	2.0		
	2800	OTTA	3 S	1724.1	1724.3	1.0	14.8	4.8		
	2800	OTTA	32A ABS	1740.0	1750	15.0	-3.8	-1.9		
	2800	OTTA	40 F	1754.1	1754.8	.7	9.6			
	2800	OTTA	8 S	1756.6	1756.7	.5	3.6			
	2800	OTTA	45 C	1759.0	1807	15.0	85.0	45.4		
	2695	PALE	20 GRF	1812.3	1812.3	24.7	34			
	8800	PALE	20 GRF	1812.3	1813.3	12.8	20			
	2800	OTTA	30 PBI	1814.0	1814	200.0	22.0	8.0		
	2800	OTTA	2 S/F	1845.2	1846	1.2	5.8	4.4		
	2800	OTTA	29 PBI	1846.7	1846.7	15.0	3.2	1.6		
	8800	PALE	8 S	1853.0	1853.3	.5	20			
	2695	PENT	20 GRF	2156.0	2200	30.0	3.2	1.6		
21	2695	MANI	45 C	0120.6	0129.0	23.4	432.6	144.2		
	8800	MANI	45 C	0123.0	0140.6	20.9	112.9	37.6		
	8800	PALE	47 GB	0127.1	0128.1	7.5	180			
	2695	LEAR	47 GB	0127.1	0128.3	9.2	300			
	2695	PALE	47 GB	0127.1	0128.3	7.0	280			
	8800	LEAR	47 GB	0127.1	0128.3	9.2	189			
	8800	PALE	47 GB	0136.8	0140.0	6.5	300			
	8800	LEAR	47 GB	0138.8	0139.8	4.3	280			
	2695	PALE	47 GB	0138.8	0140.1	2.8	119			
	2695	LEAR	47 GB	0138.8	0140.1	3.3	110			
	2800	OTTA	20 GRF	1310.0	1355	45.0D	5.2	2.6		
	2800	OTTA	21 GRF	1320.0	1340	145.0	3.8	2.8		
	2800	OTTA	2 S/F	1328.5	1329.6	4.0	3.4	1.5		
	8800	SGMR	8 S	1333.3	1334.1	1.8	11			
	2800	OTTA	3 S	1333.8	1334.1	3.0	18.4	4.8		
	2695	SGMR	8 S	1334.0	1334.1	.1	21			
	2800	OTTA	20 GRF	1555.0	1630	65.0	2.6	1.6		
	2695	PENT	1 S	1852.0	1852.7	1.0	2.2	1.1		
	2800	OTTA	1 S	1958.0	2001	10.0	4.6	2.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
21	2800	OTTA	3 S	2103.0	2106.5	6.0	12.0	6.0		
	2800	OTTA	29 PBI	2109.0	2109	30.0	6.2	2.8		
22	8800	LEAR	4 S/F	0913.8	0914.1	2.2	13			
	2800	OTTA	240 R	1815.0	1830	15.0	2.2	1.1		
	2800	OTTA	1 S	1905.0	1907	8.0	3.2	1.6		
23	2695	MANI	4 S/F	0313.0	0314.6	2.7	12.2	4.1		
	8800	LEAR	4 S/F	0313.5	0317.3	10.6	21			
	2695	LEAR	4 S/F	0314.0	0314.8	10.3	11			
	2695	PALE	4 S/F	0314.3	0314.6	6.3	27			
	8800	LEAR	20 GRF	0930.0	0937.0	9.0	13			
	2800	OTTA	240AR	1610.0	1635	25.0	2.8	1.4		
	2800	OTTA	2 S/F	1612.0	1612.5	1.2	5.2	2.4		
	2800	OTTA	240 R	1700.0	1800	60.0	8.0	4.6		
24	8800	LEAR	8 S	0509.3	0509.5	.3	24			
	2695	LEAR	8 S	0509.3	0509.5	.8	08			
	2695	LEAR	20 GRF	0633.8	0635.1	6.7	11			
	8800	LEAR	8 S	0635.1	0635.3	.2	10			
	8800	LEAR	8 S	0644.1	0644.8	.7D	11			
	2695	LEAR	4 S/F	0650.6	0651.1	16.4	11			
	8800	LEAR	4 S/F	0650.6	0652.8	20.0	20			
	2800	OTTA	1 S	1440.5	1441.2	2.5	2.6	1.2		
	2800	OTTA	21 GRF	1549.0	1640	220.0	12.2	5.2		
	2800	OTTA	2 S/F	1550.0	1552.2	4.0	7.2	3.6		
	2800	OTTA	1 S	1917.0	1918	3.0	6.8	2.6		
25	2695	PALE	47 GB	0053.3	0053.6	7.7	57			
	2695	LEAR	47 GB	0053.3	0053.6	.3	50			
	8800	LEAR	8 S	0339.8	0340.1	1.3	08			
	8800	ATHN	4 S/F	0720.6	0725.3	9.2	73			
	8800	LEAR	47 GB	0725.1	0725.3	.4	63			
	2695	LEAR	8 S	0725.3	0725.5	.2	11			
	8800	SGMR	8 S	1233.3	1233.6	2.0	49			
	2695	SGMR	8 S	1233.3	1233.6	1.8	30			
	2800	OTTA	27A RF	1442.0		128.0	3.0	2.6		
	2800	OTTA	24 R	1442.0	1446	4.0	3.0	1.5		
	2800	OTTA	24P R	1446.0		89.0	3.0			
	2800	OTTA	1 S	1605.2	1606.5	5.0	8.6	2.2		
	2800	OTTA	26 FAL	1615.0	1650	35.0	-3.0	-1.5		
	2800	OTTA	240 R	1720.0	1810	50.0	5.0	2.4		
	2800	OTTA	1 S	1906.8	1907	2.0	5.0	2.5		
	2800	OTTA	20 GRF	1945.0	2030	80.0	7.6	5.0		
	2800	OTTA	27 RF	2115.0		110.0	2.6	2.2		
	2800	OTTA	24 R	2115.0	2118	3.0	2.6	1.3		
	2800	OTTA	24P R	2118.0		72.0	2.6			
	2695	PENT	26 FAL	2230.0	2305	35.0	-2.6	-1.3		
26	2695	LEAR	20 GRF	0036.8	0037.8	2.3	11			
	2695	LEAR	8 S	0109.3	0110.3	1.7	06			
	2695	LEAR	20 GRF	0307.1	0312.8	8.4	16			
	8800	LEAR	20 GRF	0318.8	0329.3	21.0	11			
	2695	MANI	1 S	0721.5	0722.0	1.0	5.5	1.8		
	2800	OTTA	1 S	1518.3	1519.2	6.0	5.0	2.5		
	2800	OTTA	3 S	1612.0	1612.2	2.0	18.4	10.0		
	2695	SGMR	8 S	1612.5	1612.8	.8	22			
	2800	OTTA	29 PBI	1614.0	1614	12.0	4.6	1.6		
	2800	OTTA	1 S	1724.8	1725.2	2.0	5.0	2.0		
	2800	OTTA	1 S	1928.0	1929.5	8.0	2.4	1.2		
	2695	PENT	27A RF	2207.0		100.0	4.2	3.8		
	2695	PENT	24 R	2207.0	2212	5.0	4.2	1.4		
	2695	PENT	24P R	2212.0		80.0	4.2			
	2695	PENT	1 S	2212.1	2212.5	1.0	3.0	1.5		
	2695	PENT	26 FAL	2232.0	2247	15.0	-4.2	-2.1		
	2695	PENT	40 F	2255.0	2256.1	2.5	4.4			
	2695	PENT	3 S	2258.2	2258.8	2.5	13.8	4.6		
	2695	LEAR	8 S	2258.5	2258.6	.3	20			
27	8800	LEAR	8 S	0208.6	0208.8	.9	28			
	2695	LEAR	8 S	0208.6	0208.8	1.2	22			
	2695	MANI	3 S	0208.8	0209.2	4.8	27.7	9.2		
	8800	MANI	3 S	0208.8	0209.2	1.2	72.3	24.2		
	8800	LEAR	47 GB	0825.5	0835.8	12.8	400			
	2695	LEAR	47 GB	0835.5	0835.8	8.8	390			
	8800	ATHN	47 GB	0835.5	0835.8	9.6	300			
	8800	LEAR	47 GB	0835.5	0835.8	2.8	400			
	2695	ATHN	47 GB	0835.6	0836.0	13.5	320			
	8800	MANI	47 GB	0835.7	0836.1	4.3	569.3	189.8		
	2695	MANI	47 GB	0835.7	0836.1	10.3	561.6	187.2		
	8800	ATHN	8 S	1136.0	1136.3	.8	16			
	2695	ATHN	47 GB	1136.0	1136.5	.8	200			
	2800	OTTA	20 GRF	1400.0	1430	160.00	10.6			
	2800	OTTA	20 GRF	1915.0	1931	120.0	10.2	3.8		
	2800	OTTA	20 GRF	2138.0	2141	15.0	5.2	2.6		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

FEBRUARY 1982

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
28	8800	LEAR	20 GRF	0104.6	0106.1	5.5	17			
	2695	LEAR	20 GRF	0105.1	0105.1	.4	06			
	2695	LEAR	8 S	0434.8	0435.0	1.2	11			
	2695	LEAR	47 GB	0450.3	0452.1	4.0	130			
	8800	LEAR	47 GB	0450.6	0451.8	5.5	280			
	8800	MANI	3 S	0452.8	0455.4	6.7	315.4	105.1		
	2695	MANI	4 S/F	0453.6	0455.5	6.4	132.2	44.1		
	8800	LEAR	4 S/F	0624.6	0625.3	2.5	20			
	2695	LEAR	20 GRF	0625.0	0625.6	3.8	05			
	8800	LEAR	8 S	0837.0	0837.6	1.0	36			
	2800	OTTA	21 GRF	1810.0	2052	210.0	14.4	5.0		
	2800	OTTA	4 S/F	1838.0	1845.5	12.0	16.4	5.4		

Observatories:

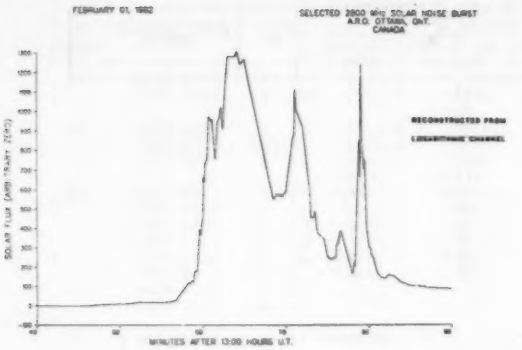
RERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

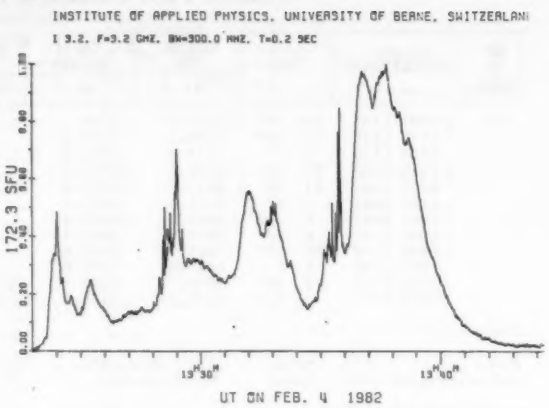
Explanation of Type Code:

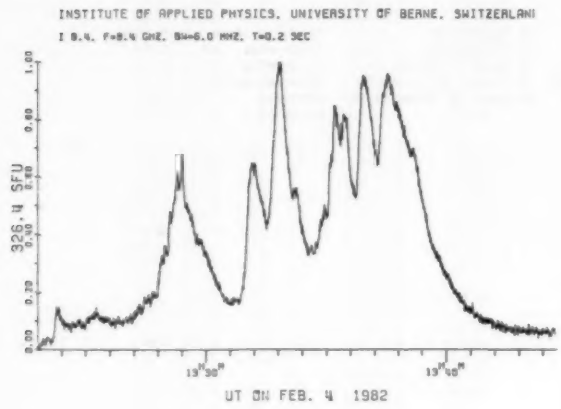
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

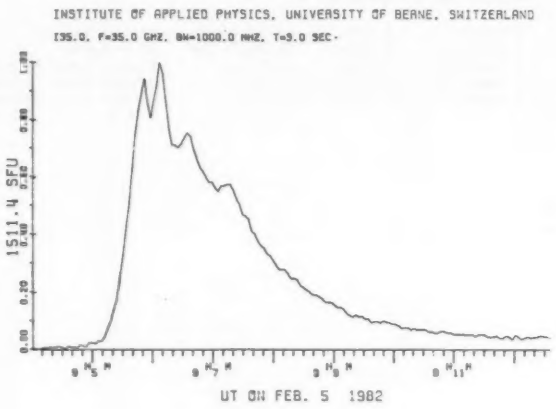
SELECTED SOLAR NOISE BURSTS

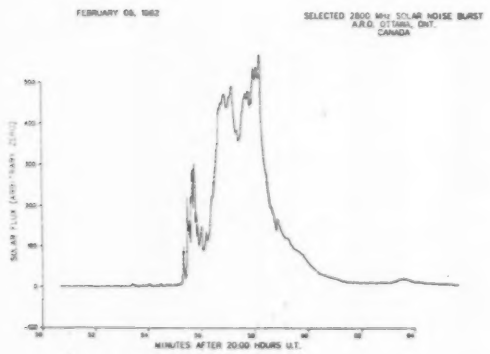
FEBRUARY 1-18, 1982

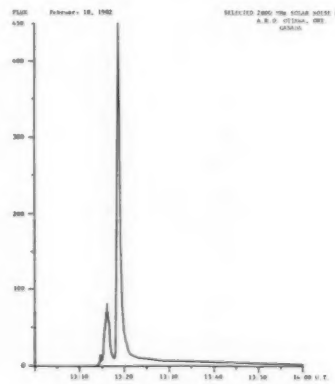












SOLAR WIND

Interplanetary Scintillations

FEBRUARY 1982

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
820201	32	1	422	10	433	11	3	3C48	83	1	1.01	-14	-1.08	1717.97
	32	5	578	36	708	95	2	3C144	132	-6	1.22	-10	-0.11	1717.98
	32	11	854	34	729	147	2	3C273	125	-5	1.20	12	1.31	1717.98
	32	12	524	15	582	21	2	3C283	107	-10	1.12	15	1.53	1717.92
820202	33	1	441	15	460	14	3	3C48	83	1	1.01	-15	-1.11	1718.01
	33	5	801	106	679	75	2	3C144	131	-6	1.22	-11	-0.35	1718.06
	33	6	931	40	736	150	2	3C161	135	-12	1.23	-7	-0.10	1718.06
	33	11	691	19	683	34	3	3C273	126	-5	1.20	13	1.47	1717.99
	33	12	673	12	687	12	4	3C283	108	-10	1.13	14	1.40	1717.99
	33	13	568	42	592	36	2	3C295	111	6	1.14	7	0.97	1717.99
	33	15	628	13	644	14	3	3C298	103	-2	1.11	15	1.43	1717.99
820203	34	1	563	19	661	23	3	3C48	82	1	1.00	-15	-1.18	1718.08
	34	2	475	50	534	19	2	3C144-	130	-6	1.21	-10	0.02	1718.02
	34	5	540	14	508	13	2	3C144	130	-6	1.21	-11	-0.11	1718.05
	34	6	536	70	518	15	2	3C161	134	-12	1.23	-8	0.17	1718.04
	34	23	318	80	418	47	2	3C459	37	10	0.60	-50	-6.15	1718.21
820204	35	1	348	9	394	10	3	3C48	81	1	1.00	-16	-1.26	1718.05
	35	2	322	91	267	23	2	3C144-	129	-6	1.21	-11	0.36	1717.98
	35	5	667	16	528	45	2	3C144	129	-6	1.21	-10	-0.21	1718.11
	35	11	908	111	747	186	2	3C273	128	-6	1.21	12	1.28	1718.09
	35	12	975	111	974	169	3	3C283	110	-11	1.14	14	1.27	1718.10
	35	14	622	66	626	62	3	3C298	105	-2	1.12	15	1.48	1718.06
820205	36	1	372	10	409	35	4	3C48	80	1	0.99	-15	-1.21	1718.10
	36	2	320	12	434	142	2	3C144-	128	-6	1.21	-11	0.32	1718.01
	36	5	458	45	409	19	3	3C144	128	-6	1.21	-10	0.03	1718.09
	36	12	479	11	463	47	2	3C283	111	-11	1.14	15	1.65	1718.05
	36	14	588	44	670	60	3	3C298	106	-2	1.12	15	1.46	1718.09
	36	22	299	29	307	59	2	3C459	35	10	0.57	-51	-6.53	1718.28
820206	37	1	413	8	415	11	3	3C48	79	1	0.99	-15	-1.25	1718.15
	37	2	513	33	490	17	2	3C144-	127	-6	1.20	-11	-0.14	1718.14
	37	5	493	13	496	15	3	3C144	127	-6	1.20	-12	-0.14	1718.14
	37	6	572	9	564	9	2	3C161	132	-13	1.22	-8	0.08	1718.16
	37	11	491	118	521	148	2	3C273	130	-6	1.21	12	1.67	1718.09
	37	12	415	16	473	54	2	3C283	112	-11	1.15	15	1.73	1718.06
	37	14	293	7	412	150	2	3C298	107	-2	1.12	14	1.83	1717.99
820207	38	1	396	9	366	9	3	3C48	78	1	0.98	-15	-1.29	1718.18
	38	2	433	17	449	12	2	3C144-	126	-6	1.20	-12	-0.05	1718.15
	38	3	514	13	458	57	2	3C147	124	1	1.19	-9	0.02	1718.18
	38	4	374	*	368	*	2	3C144	126	-6	1.20	-11	0.10	1718.13
	38	6	407	47	410	30	2	3C161	131	-13	1.22	-7	0.43	1718.14
	38	7	351	11	355	29	2	3C144+	126	-6	1.20	-12	0.15	1718.12
820208	39	1	352	14	400	38	4	3C48	77	1	0.98	-16	-1.35	1718.20
	39	2	432	20	418	19	2	3C144-	125	-6	1.20	-12	-0.06	1718.19
	39	3	438	10	395	28	2	3C147	123	1	1.19	-9	0.07	1718.19
	39	4	371	7	383	8	3	3C144	125	-6	1.20	-11	0.14	1718.16
	39	6	426	46	438	25	2	3C161	131	-13	1.22	-8	0.33	1718.18
	39	7	409	24	439	45	2	3C144+	125	-6	1.20	-11	-0.00	1718.19
	39	11	382	34	425	26	2	3C273	132	-6	1.22	12	1.95	1718.11
	39	12	441	118	386	108	2	3C283	114	-11	1.16	14	1.69	1718.15
	39	14	417	19	406	25	3	3C298	108	-2	1.13	15	1.67	1718.14
	39	16	336	12	311	11	2	3C368	57	14	0.84	26	1.05	1718.13
820209	40	1	364	26	368	33	3	3C48	76	1	0.97	-15	-1.32	1718.24
	40	2	317	11	379	13	2	3C144-	124	-6	1.19	-12	0.19	1718.16
	40	3	285	29	272	70	2	3C147	122	1	1.19	-10	0.44	1718.13
	40	4	323	14	354	21	2	3C144	124	-6	1.19	-12	0.15	1718.17
	40	5	375	9	369	9	2	3C161	130	-13	1.21	-9	0.34	1718.19
	40	7	332	17	341	30	2	3C144+	124	-6	1.19	-12	0.15	1718.18
	40	10	361	26	416	105	2	3C273	133	-6	1.22	11	1.97	1718.14
	40	13	371	14	385	96	2	3C298	109	-2	1.13	14	1.73	1718.15
820210	41	2	352	10	375	11	2	3C144-	123	-6	1.19	-13	0.02	1718.22
	41	3	391	9	420	9	3	3C147	121	1	1.18	-9	0.17	1718.24
	41	4	379	18	394	12	3	3C144	123	-6	1.19	-13	-0.06	1718.24

SOLAR WIND

Interplanetary Scintillations

FEBRUARY 1982

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	41	5	373	10	376	7	3	3C161	129	-13	1.21	-8	0.39	1718.23
	41	12	566	*	537	*	2	3C295	114	6	1.16	5	0.88	1718.28
	41	12	443	*	450	*	2	3C283	116	-11	1.16	13	1.63	1718.22
	41	14	460	12	471	15	3	3C298	110	-2	1.14	15	1.64	1718.23
820211	42	1	351	12	381	13	3	3C48	74	1	0.96	-15	-1.36	1718.31
	42	2	409	13	377	12	3	3C144-	122	-6	1.19	-13	-0.16	1718.29
	42	3	351	9	379	10	2	3C147	121	0	1.18	-9	0.23	1718.26
	42	4	344	8	348	8	4	3C144	122	-6	1.19	-12	0.05	1718.26
	42	5	433	10	399	46	3	3C161	128	-13	1.21	-9	0.17	1718.30
	42	7	370	18	374	15	3	3C144+	122	-6	1.19	-12	-0.03	1718.28
	42	10	354	12	371	13	2	3C273	135	-6	1.23	11	2.02	1718.20
	42	12	411	23	375	12	2	3C283	117	-11	1.17	14	1.76	1718.24
	42	14	623	10	641	11	3	3C298	111	-2	1.14	14	1.48	1718.31
	42	17	411	*	435	*	2	4C21.5	46	33	0.72	20	0.17	1718.30
	42	22	331	30	286	14	2	3C459	30	13	0.50	-58	-7.21	1718.54
820212	43	0	495	32	506	16	3	3C48	73	1	0.96	-16	-1.41	1718.40
	43	2	381	18	426	24	2	3C144-	121	-6	1.18	-13	-0.11	1718.32
	43	3	474	20	470	21	2	3C147	120	0	1.18	-11	-0.14	1718.35
	43	4	346	35	460	23	2	3C144	121	-6	1.18	-12	0.00	1718.30
	43	10	636	20	586	46	2	3C273	136	-6	1.23	11	1.47	1718.35
	43	11	474	70	415	67	2	3C283	118	-11	1.17	13	1.61	1718.30
	43	16	417	*	367	*	2	3C368	60	12	0.87	24	1.22	1718.31
820213	44	1	413	13	462	17	3	3C48	72	1	0.95	-15	-1.40	1718.42
	44	2	408	16	413	28	3	3C144-	120	-6	1.18	-12	-0.17	1718.37
	44	5	403	69	458	21	2	3C161	127	-13	1.20	-9	0.23	1718.36
	44	7	251	10	272	16	2	3C144+	120	-6	1.18	-13	0.31	1718.25
	44	11	451	69	424	33	2	3C283	119	-11	1.18	13	1.63	1718.33
820214	45	0	484	64	429	15	2	3C48	71	1	0.95	-16	-1.50	1718.48
	45	2	494	24	411	20	2	3C144-	119	-6	1.18	-12	-0.28	1718.44
	45	3	367	14	419	79	2	3C147	118	0	1.17	-11	0.01	1718.38
	45	4	381	17	397	10	2	3C144	119	-6	1.18	-12	-0.11	1718.40
	45	5	438	43	456	50	2	3C161	126	-13	1.20	-10	0.07	1718.41
	45	11	327	10	408	56	2	3C283	120	-11	1.18	13	1.96	1718.30
	45	11	360	57	341	59	2	3C273	138	-6	1.24	10	1.95	1718.32
	45	12	395	84	386	51	2	3C295	116	6	1.16	5	1.12	1718.37
	45	13	435	37	453	32	2	3C298	114	-2	1.16	13	1.63	1718.37
820215	46	0	444	13	470	16	3	3C48	70	2	0.94	-16	-1.54	1718.50
	46	2	340	11	319	27	2	3C144-	118	-6	1.17	-12	-0.02	1718.40
	46	4	403	18	485	72	2	3C144	118	-6	1.17	-13	-0.22	1718.44
	46	5	321	35	514	17	2	3C161	125	-13	1.20	-10	0.34	1718.38
	46	13	413	33	411	23	2	3C298	115	-2	1.16	14	1.71	1718.39
820216	47	0	549	12	519	11	3	3C48	69	2	0.93	-17	-1.57	1718.57
	47	4	463	39	425	62	2	3C144	117	-6	1.17	-12	-0.31	1718.51
	47	11	341	37	338	57	2	3C283	122	-11	1.19	12	1.89	1718.38
	47	13	423	53	469	15	2	3C298	116	-2	1.16	13	1.66	1718.43
820217	48	1	369	14	390	15	3	3C144-	116	-7	1.16	-13	-0.19	1718.50
	48	3	441	10	458	23	2	3C147	115	0	1.16	-11	-0.20	1718.53
	48	4	443	7	440	7	4	3C144	116	-7	1.16	-13	-0.34	1718.54
	48	5	493	8	482	18	3	3C161	124	-13	1.19	-10	-0.06	1718.55
	48	6	457	20	456	11	2	3C144+	116	-7	1.16	-13	-0.36	1718.55
	48	13	424	15	479	74	2	3C298	117	-2	1.17	13	1.67	1718.47
	48	15	444	62	418	84	2	3C368	64	9	0.90	21	1.11	1718.50
820218	49	1	331	56	470	20	2	3C144-	115	-7	1.16	-14	-0.17	1718.51
	49	1	431	29	426	148	2	3C48	68	3	0.93	-19	-1.82	1718.62
	49	3	533	38	584	16	2	3C147	114	0	1.16	-11	-0.31	1718.60
	49	4	411	14	474	17	3	3C144	115	-7	1.16	-14	-0.36	1718.56
	49	5	506	13	521	13	2	3C161	123	-14	1.19	-10	-0.12	1718.59
	49	6	321	33	302	33	2	3C144+	115	-7	1.16	-14	-0.19	1718.51
	49	6	517	20	464	18	2	3C196	137	0	1.24	-7	0.26	1718.58
	49	11	549	35	543	15	2	3C283	124	-11	1.19	12	1.54	1718.55
	49	12	277	52	266	66	2	3C295	117	6	1.17	5	1.46	1718.43
820219	50	14	305	*	320	*	2	3C298	119	-2	1.18	13	2.01	1718.47
820220	51	11	307	9	324	25	3	3C283	125	-11	1.20	13	2.12	1718.50

SOLAR WIND

Interplanetary Scintillations

FEBRUARY 1982

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
820221	52	0	422	51	448	41	2	3C48	65	4	0.91	-22	-2.14	1718.74
820222	53	0	367	10	398	17	4	3C48	64	4	0.90	-23	-2.27	1718.75
	53	1	376	13	391	13	2	3C144-	111	-7	1.14	-14	-0.40	1718.69
	53	3	371	13	408	14	3	3C144	111	-7	1.14	-13	-0.32	1718.69
	53	3	372	36	314	19	2	3C147	111	0	1.14	-11	-0.15	1718.68
	53	6	344	42	293	48	2	3C144+	111	-7	1.14	-14	-0.33	1718.68
	53	13	605	13	611	55	3	3C298	122	-2	1.19	11	1.39	1718.71
820223	54	0	461	10	478	11	4	3C48	63	5	0.89	-24	-2.29	1718.83
	54	1	314	47	349	16	2	3C144-	110	-7	1.14	-14	-0.24	1718.69
	54	3	329	13	373	13	3	3C144	110	-7	1.14	-13	-0.28	1718.70
	54	5	294	13	314	74	2	3C161	119	-14	1.18	-11	0.26	1718.66
820224	55	0	446	10	421	10	4	3C48	62	5	0.88	-25	-2.43	1718.86
	55	1	386	16	320	13	3	3C144-	109	-7	1.13	-14	-0.43	1718.77
	55	2	364	15	398	20	2	3C147	109	0	1.13	-13	-0.34	1718.76
	55	3	367	10	400	11	4	3C144	109	-7	1.13	-14	-0.45	1718.76
	55	5	460	10	444	35	3	3C161	118	-14	1.17	-11	-0.18	1718.79
	55	6	382	16	375	45	2	3C144+	109	-7	1.13	-13	-0.40	1718.78
	55	13	448	18	464	13	2	3C298	123	-3	1.19	12	1.68	1718.74
	55	19	355	84	327	82	2	3C409	47	32	0.73	20	0.06	1718.76
820225	56	0	386	28	404	11	4	3C48	61	6	0.87	-26	-2.62	1718.88
	56	1	456	13	450	12	4	3C144-	108	-7	1.13	-14	-0.60	1718.84
	56	2	385	23	398	36	2	3C147	108	0	1.13	-13	-0.36	1718.80
	56	3	464	9	453	9	4	3C144	108	-7	1.13	-14	-0.60	1718.85
	56	4	456	8	458	23	4	3C161	117	-14	1.17	-10	-0.14	1718.83
	56	5	432	12	421	12	2	3C196	131	0	1.22	-8	0.31	1718.80
	56	6	408	12	397	33	2	3C144+	108	-7	1.13	-14	-0.55	1718.83
	56	11	439	18	467	33	3	3C295	118	5	1.17	3	0.91	1718.79
	56	11	440	20	492	63	3	3C283	130	-11	1.21	11	1.68	1718.76
	56	13	542	31	535	69	3	3C298	124	-3	1.19	12	1.57	1718.80
	56	15	289	69	306	23	2	3C368	70	5	0.94	17	0.83	1718.72
820226	57	1	481	34	380	93	2	3C144-	107	-7	1.12	-15	-0.69	1718.89
	57	2	440	27	486	23	2	3C147	107	0	1.12	-12	-0.44	1718.87
	57	3	313	32	449	37	2	3C144	107	-7	1.12	-15	-0.41	1718.80
	57	4	551	37	493	12	2	3C161	116	-14	1.16	-10	-0.27	1718.90
	57	5	415	17	392	16	2	3C196	130	0	1.21	-8	0.29	1718.83
	57	6	332	73	391	97	2	3C144+	107	-7	1.12	-14	-0.38	1718.82
	57	10	329	32	325	228	2	3C283	131	-11	1.22	11	2.00	1718.74
	57	12	497	61	594	29	2	3C298	125	-3	1.20	11	1.56	1718.83
820227	58	0	304	12	473	89	2	3C48	59	7	0.86	-27	-2.94	1718.92
	58	3	462	53	460	47	3	3C144	106	-7	1.12	-15	-0.69	1718.92
	58	10	348	9	452	39	3	3C283	132	-11	1.22	10	1.93	1718.79
	58	23	387	11	365	10	4	3C48	58	7	0.85	-28	-2.91	1719.00
820228	59	3	390	74	359	64	2	3C144	105	-7	1.12	-14	-0.53	1718.93
	59	13	290	7	353	51	2	3C298	127	-3	1.20	11	2.15	1718.78

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

INFERRED IP MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2010	AUG 13		AT					-	AT	-						-		-	AT				TA		-	A*		
2011	SEP 9							TA	AT						TA	TA										TA		
2012	OCT 6							*		TA	TA		AT	A*	A*							TA			TA		
2013	NOV 2	AT					TA	TA				AT	A*								-	TA	AT			TA		
2014	NOV 29				-					-	-				TA		TA	TA	AT	-		AT			-		TA	
2015	DEC 26									-	-				-	TA	- TA	-	-	-	-	-	-	AT	AT		-	-	-
2016	1981 JAN 22	TA	-		AT	T*	-		-	AT	TA				TA					-				AT				TA	
2017	FEB 18			AT	TA									TA	TA			*							AT	TA		TA	
2018	MAR 17							AT						-					TA				AT		-	-	TA	AT	
2019	APR 13	TA		-	-	-					-				TA				*	AT	-		-		-	AT	-	-	
2020	MAY 10	-	-	-	-	TA	AT	TA					TA									*	*						
2021	JUN 6			*							AT				TA			AT		-	-	-	-	-	-	-	-	-	-
2022	JUL 3		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	JUL 30		-	-	-	-		-		-	-	-		-	-	-	-	-	TA	-	TA	-	-	-	-	AT	-	-	-
2024	AUG 26	-	-		-	-	TA	-	TA	-	-	TA	-	-	-	TA	-	TA	-	-	-	-	TA	-	-	-	-	-	-
2025	SEP 22		-	-	-	-	-	-	AT	-	TA	-	-	TA	-	TA	-	TA	-	AT	-	TA	-	TA	-	TA	-	TA	-
2026	OCT 19	AT	-	TA	-	TA	-	-	TA	-	TA	-	TA	-	-	-	TA	-	-	-	-	-	AT	-	TA	-	-	-	-
2027	NOV 15		-	-	-	-	AT	-	AT	-	-	-	AT	-	-	-	TA	-	TA	-	TA	-	-	-	-	-	AT	-	-
2028	DEC 12	TA	-	-	-	-	-	AT	-	AT	-	-	TA	-	-	-	-	AT	-	AT	-	TA	-	-	-	TA	-	-	-
2029	1982 JAN 8		-	-	-	-	TA	-	TA	-	-	-	-	-	TA	-	-	TA	-	-	-	AT	-	-	-	-	AT	-	-
2030	FEB 4		-	-	-	TA	-	TA	-	TA	-	-	-	-	-	-	TA	-	-	-	-	-	-	-	TA	-	-		

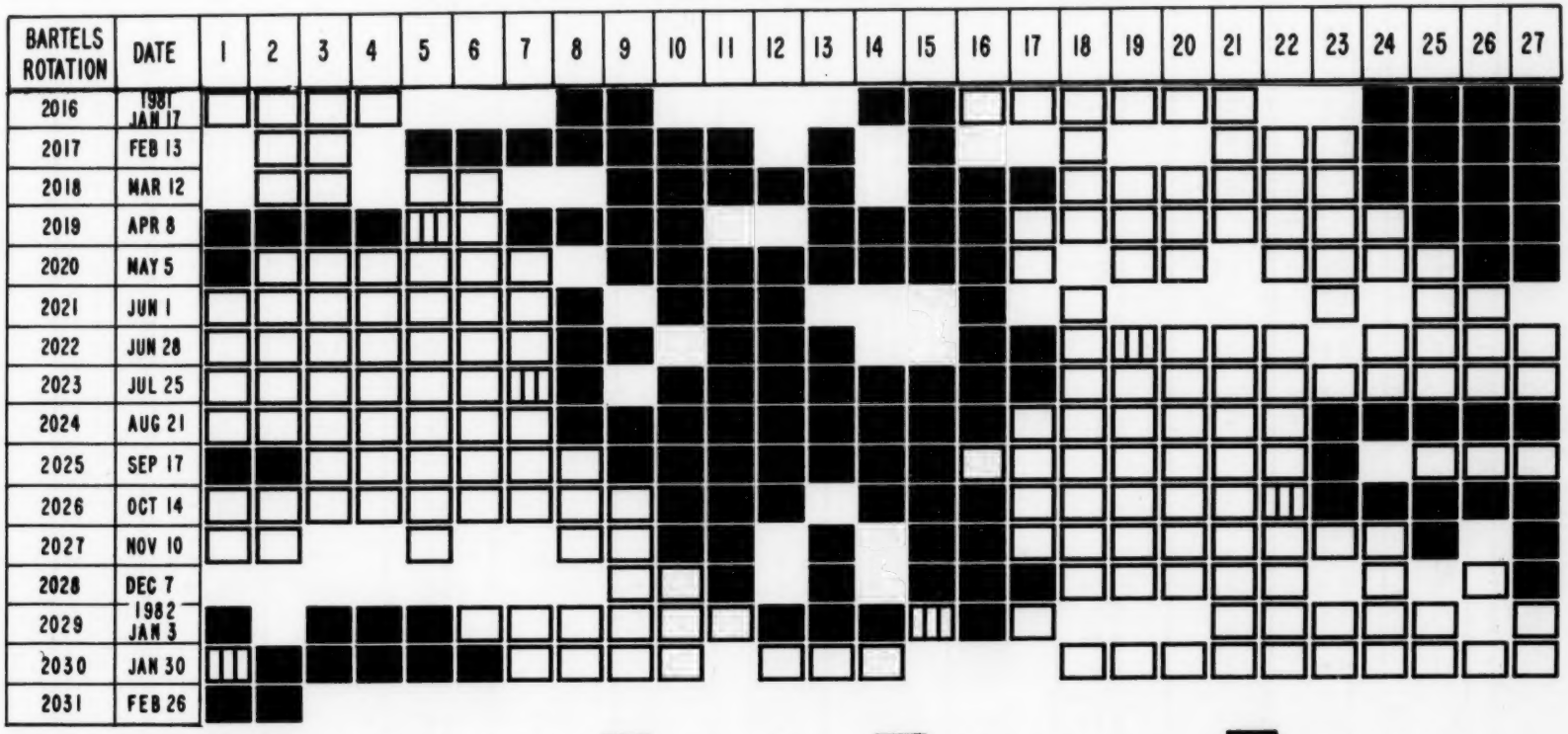
■ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

netometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1981										1982	
day	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.
01	.	75	2	16	53	-49	-134	-27	94	41	15	-20
02	54	82	-51	21	49	.	-87	11	82	34	-6	-44
03	.	31	-66	17	41	-72	-56	70	55	49	-17	-29
04	.	-23	-56	6	14	-80	-21	104	-1	-3	.	-3
05	102	-67	-24	28	-17	-67	-7	115	-19	.	-10	9
06	81	-85	23	33	-62	-48	11	104	-36	-12	-5	19
07	39	-97	25	3	.	-33	26	28	-29	.	-4	43
08	-11	-76	36	-27	-93	-26	30	25	-23	.	25	64
09	-28	-40	45	.	-56	-19	33	-7	-16	.	23	.
10	-50	-28	49	-96	-43	-7	32	.	11	.	36	15
11	-58	-7	35	-75	.	16	4	8	34	.	45	24
12	.	0	.	-58	.	58	-29	32	.	.	35	33
13	18	13	-76	.	-9	68	-47	43	.	.	16	.
14	35	-6	-147	.	-7	81	-37	64	105	.	-7	.
15	.	-29	-131	.	9	68	-24	103	.	57	-6	.
16	37	-61	-94	-3	0	49	-32	115	.	17	-12	14
17	12	-73	-50	.	38	49	-24	167	48	-5	-1	16
18	.	.	-47	50	59	42	-8	218	3	.	-3	5
19	.	.	-53	.	66	16	11	193	-28	-37	33	15
20	-41	-85	-41	.	.	12	85	115	-45	.	.	27
21	-91	-79	13	.	108	31	135	65	.	-39	.	38
22	-119	-86	.	.	107	38	124	9	-65	-11	.	48
23	-120	-51	72	59	73	52	60	-62	.	-2	9	41
24	-102	5	61	.	34	67	6	-107	-43	35	25	28
25	.	43	.	29	29	92	-79	-128	-20	4	35	10
26	-88	70	126	18	34	64	-115	.	58	39	42	-3
27	-52	67	109	.	28	15	-138	-61	83	17	36	-34
28	-20	84	50	44	33	-12	-144	-60	96	29	.	
29	31	122	24	62	43	-64	-121	-19	59	.	15	
30	45	61	-9	50	38	-84	-75	67	55	24	0	
31	55		-4		1	-143		87		.	-10	

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII
Solar Wind
FEBRUARY 1982

DATE Feb '82	TIME (UT)	ESV (°)	U_{H+} (km/s)	N_{H+} (H^+/cc)	T_{H+} (x10^6 K)
1	0014		428.	43.9	0.016
2	0449		719.	2.6	.08
3	0536		705.	6.6	.314
4	0615		518.	8.7	.049
5	0337		449.	20.7	.189
6	0419		371.	19.8	.032
7	0616		395.	130.7	.108
8	0453		391.	19.8	.088
9	0528		317.	49.6	.021
10	0341		533.	20.7	.274
11	0401		614.	5.3	.02
12	0459		434.	23.8	.015
13	0528		347.	251.9	.074
14	1041		417.	18.2	.035
15	0546	015.	400.	40.1	.061
16	0248		337.	35.	.074
17	0404		388.	103.3	.034
18	0556		736.	11.9	.692
19	0520		693.	6.9	.142
20	0417		780.	4.2	.272
21	0509		574.	17.1	.358
22	0442		558.	8.7	.05
23	0540		466.	4.1	.013
24	0352		360.	6.4	.032
25	0518		326.	54.5	.014
26	0104		467.	75.	.136
27	0446		550.	9.2	.205
28	0511	023.	609.	8.	.156

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

FEBRUARY 1982

DATE	ONSET TIME	DIR	COMMENTS
02/01	0955	West	Initial onset, numerous injections with recovery near 1430 UT.
	1700	West	Strong SS, strong injection at 1805 UT with final recovery near 2130 UT.
02/02			Field very active through 1700 UT.
	0615	center	
	1110	West	Moderate SS
02/03			Field intermittently active.
	0455	East	Weak SS
	1040	West	Weak SS
	1325	West	Moderate SS
02/04			Field at magstorm level 0200-1700 UT?
02/05			Field moderately unsettled.
	0350	East	
	1610	West	Moderate SS
02/06			Field very active 0600 - 2100 UT.
	0755	West	Short-lived, strong SS.
	1055	West	Moderate SS
02/07			Field moderately unsettled.
	0140	East	
	0210	East	
	0635	center	
	0955	West	
02/08			Field unsettled all day.
	0430	East	Weak SS
	0940	East	
	1000	West	
	2000	West	
02/09			Field intermittently unsettled.
	0410	East	Weak SS
	1125	West	Several injections with recovery near 1300 UT.
02/10	1105	West	Moderate to strong SS.
	1425	West	Moderate SS
	1530		Localized SS vicinity College.
	1620	West	
	1845		Localized SS Norman Wells to Inuvik.
02/11			Field intermittently active.
	0325		Moderate Bays H and D components at Boulder and Tucson.
	1319	West	
	1455	West	
02/12			Field unsettled after 1000 UT.
	1115	West	
	1250	West	Weak SS
	1850	West	Moderate SS College - Ft. Yukon; several injections with recovery near 2100 UT.
02/13			Minor magstorm conditions between 0530-2100 UT.
02/14			Field active all day.
	0205		Moderate Bays H and D components at Boulder and Tucson.
	0500	East	
	0735	center	
	1050		Weak SS
	1150	West	
	1750	West	
	1945		Localized SS Norman Wells to Inuvik.
02/15	0715	West	
	1120	West	Numerous minor injections with final field recovery near 1700 UT.
02/16			Field intermittently unsettled with no distinctive SS activity.
02/17	0605	East	Initial SS onset, slow expansion westward several injections with field recovery near 0830 UT.
	0845		Positive impulse H-component all mid/low latitude stations.
	1120	East	Moderate SS
	1440		Localized moderate SS vicinity College, several injections with recovery near 1800 UT.
02/18	0730		Localized SS vicinity College.
	0810	East	Weak SS
	1315	West	Several injections with recovery near 1600 UT.
	2300		Boulder in partial Ring Current sector.
02/19	0340		Localized SS Norman Wells to Inuvik to Sachs Harbour.
	0640		Localized SS vicinity College.
	0910	West	
	1305	West	
	1505		Localized SS Ft. Yukon to Norman Wells.
02/20	0750	West	Weak SS
	0820	West	
	1100	West	Moderate SS, several injections with recovery near 1430 UT.
02/21	0725		Weak positive impulse H-component all mid/low latitude stations.
	0735		Weak SS
	1035	West	Strong SS, several injections with recovery near 1415 UT.
	1800		Weak positive impulse H-component all mid/low latitude stations.
02/22			Field unsettled with minor magstorm conditions 0930-1930 UT.
02/23			Field unsettled with active conditions 0930-1700 UT.
	1410	West	Moderate SS, several injections with recovery near 1645 UT.
02/24	0525		Weak SS
	0905		Weak SS, localized vicinity College.
	0940		Localized SS College to Ft. Yukon.
	1320	West	Several injections with recovery near 1500 UT.
02/25	0335	East	
	0815	West	
	1205	West	
	1400	West	
02/26			Field unsettled with active conditions 0600-1330 UT.
	0310	East	
	0700	West	Moderate SS with several injections.
	0940	West	Moderate SS, several injections with recovery near 1200 UT.
02/27			Field intermittently unsettled.
	0950		Weak SS vicinity College.
02/28			Field intermittently unsettled.
	0925		Weak SS.

SGD 451 Part I (Prompt)

JANUARY 1982 DATA

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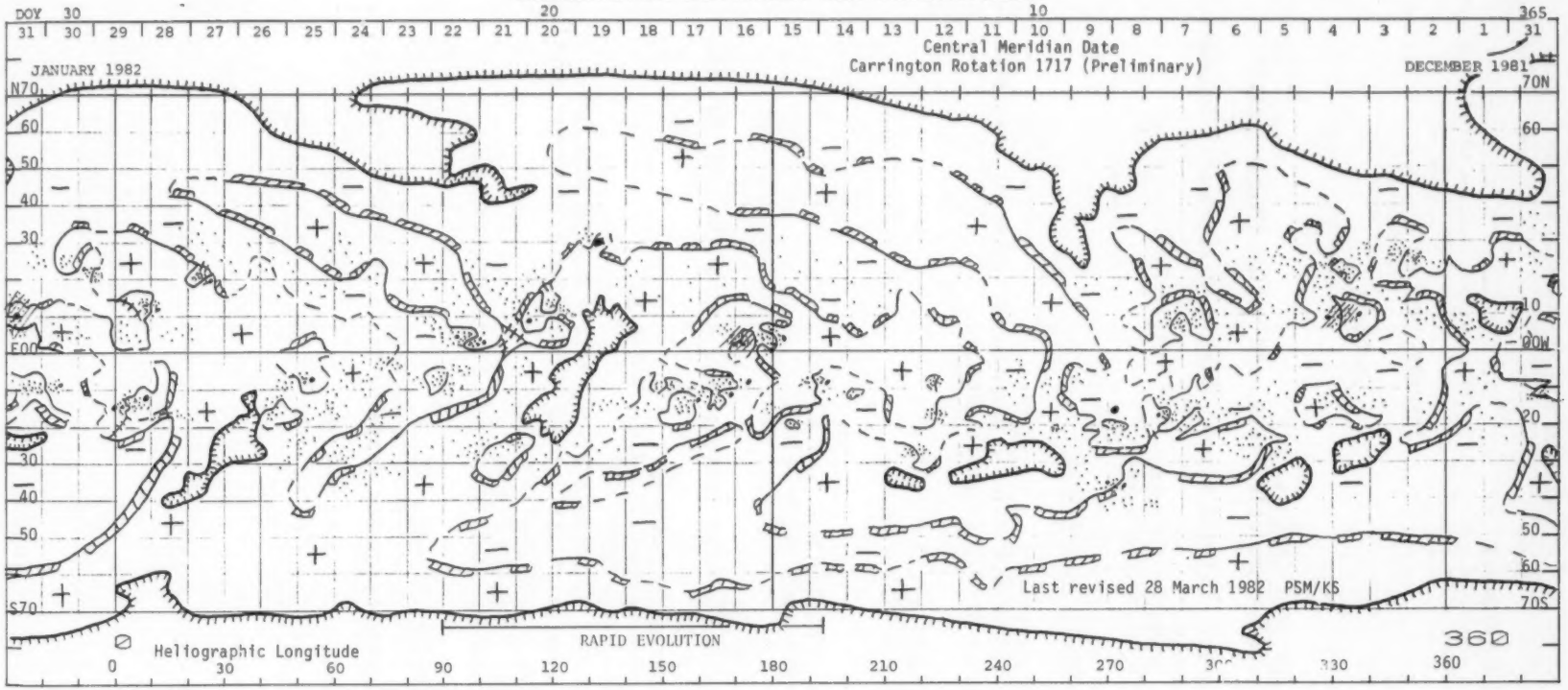
Hα SYNOPTIC CHART

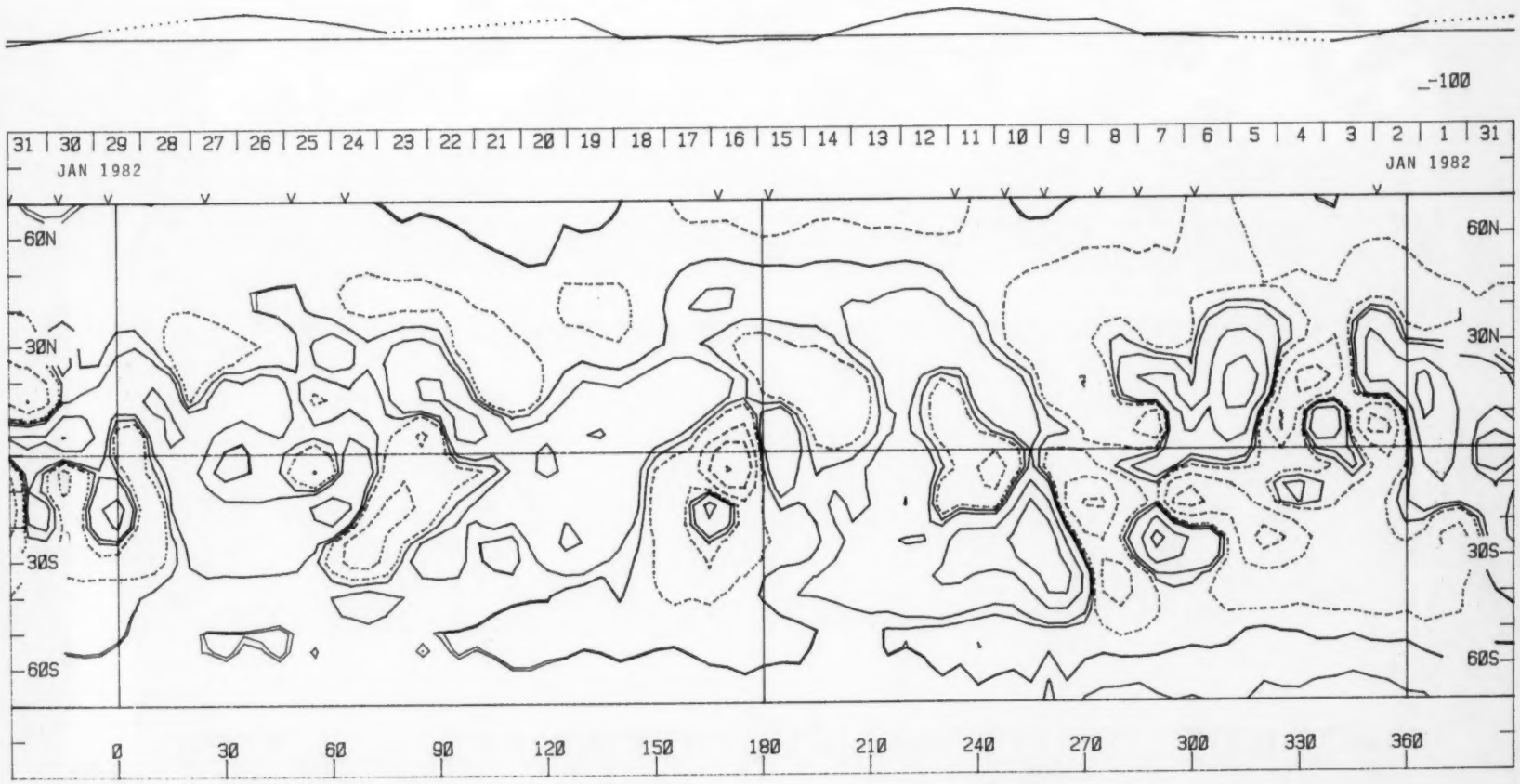
CARRINGTON ROTATION 1717 (PRELIMINARY)

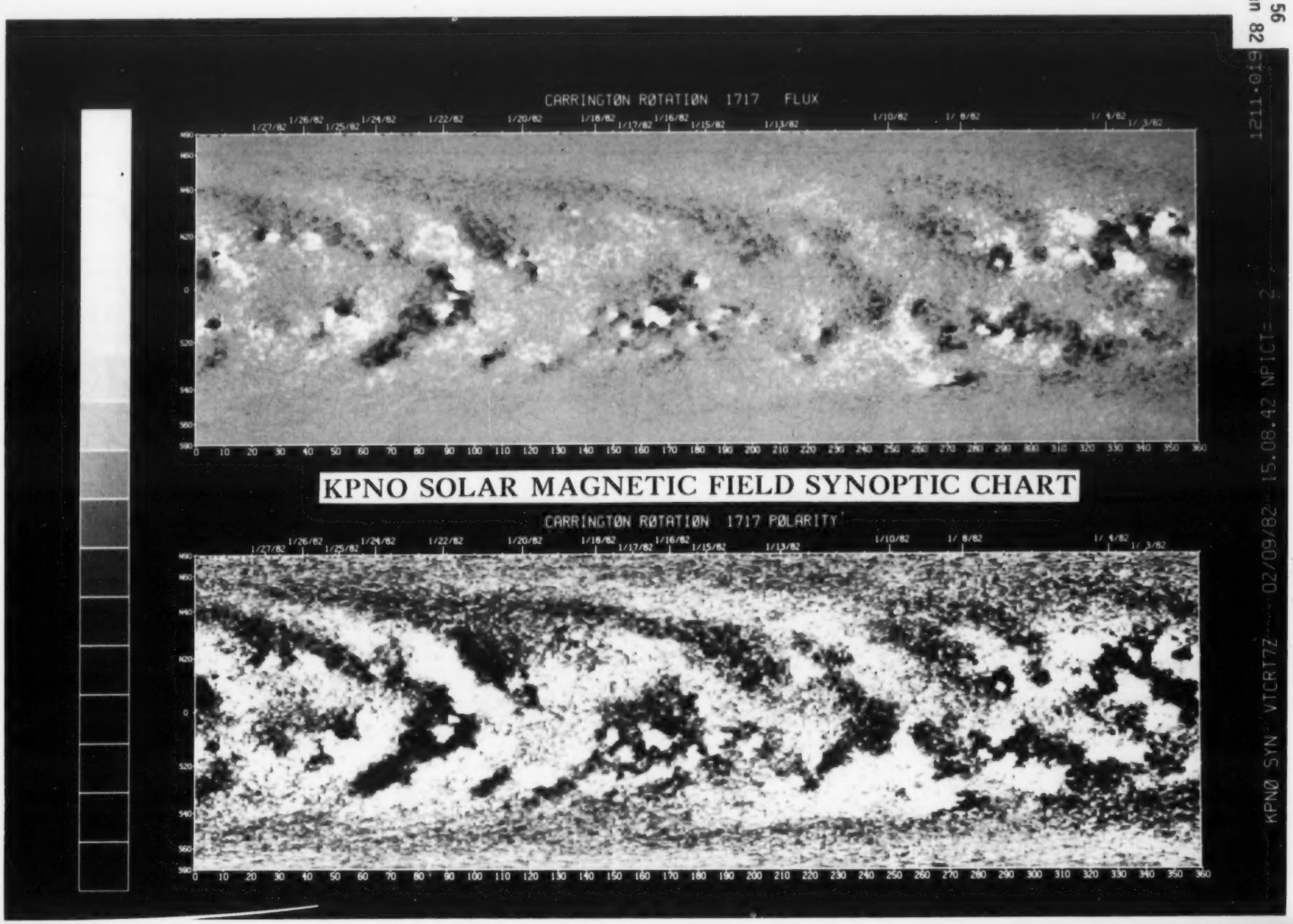


SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1717

Stanford Solar Observatory

0.±100.200.500... μT

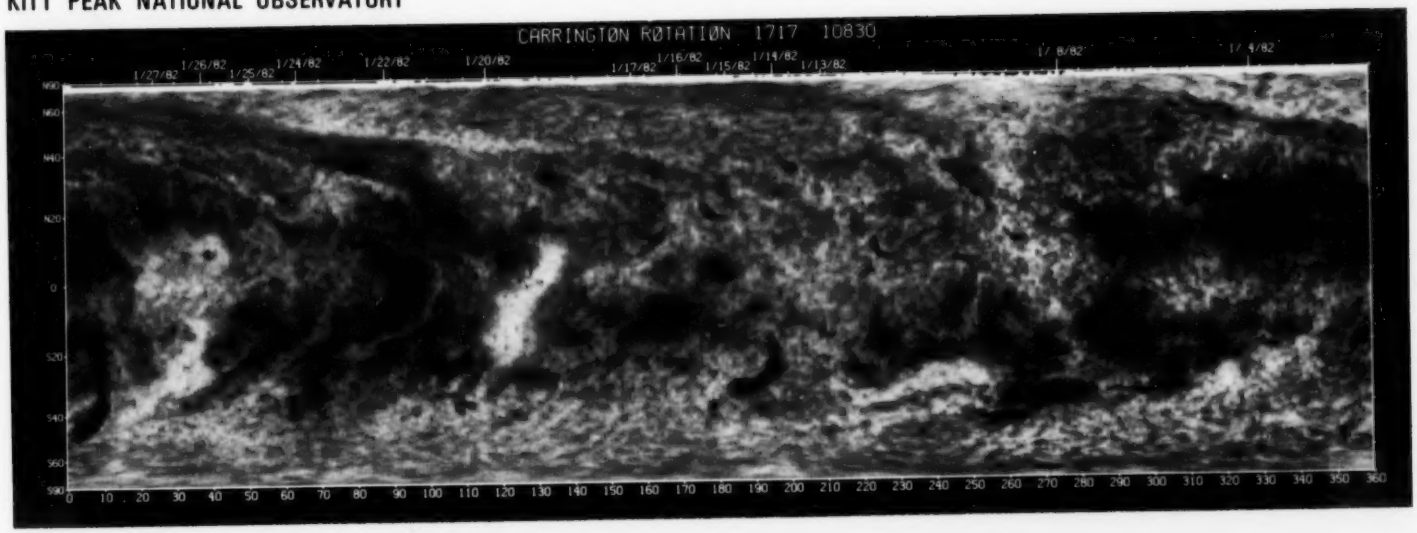




KPNØ SYN VTCRT72 02/09/82 15.08.42 NPICT= 2
1211-019

HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1717

KITT PEAK NATIONAL OBSERVATORY



JANUARY 1, 1982 (P= 2.18, B_o=-3.03, L_o= 16.89)

SACRAMENTO PEAK Np CORONA
5303 Å

NO DATA JANUARY 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 21, 22, 30

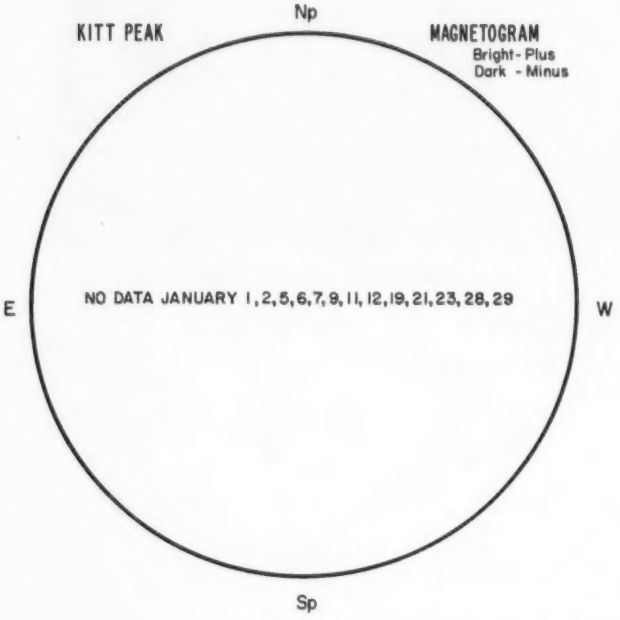
E W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



NO DATA JANUARY 1, 2, 5, 6, 7, 9, 11, 12, 19, 21, 23, 28, 29

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E W

NO DATA JANUARY 1, 2, 4, 5, 6, 10, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28

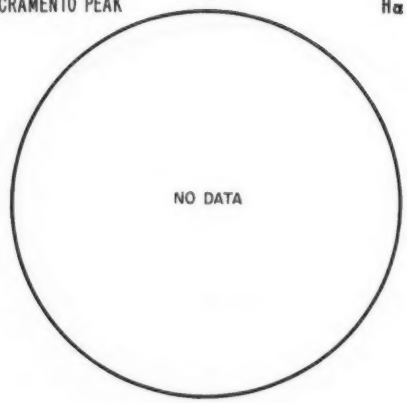
Levels
± 5
± ± 10
± ± 20
± ± 40
± ± 80

Sp

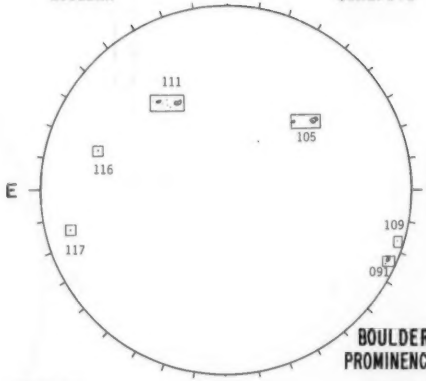
Sp

01

SACRAMENTO PEAK Np Hα



BOULDER Np SUNSPOTS



1730 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS

E NO DATA JANUARY 1, 2, 5, 6, 7, 9, 11, 12, 19, 21, 23, 28, 29 W

Sp

STANFORD Np

E NO DATA JANUARY 1, 3, 4, 5, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 26, 28 W

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

JANUARY 2, 1982 (P= 1.70, B_o = -3.14, L_o = 3.72)

SACRAMENTO PEAK Np

CORONA
5303 Å

E NO DATA W

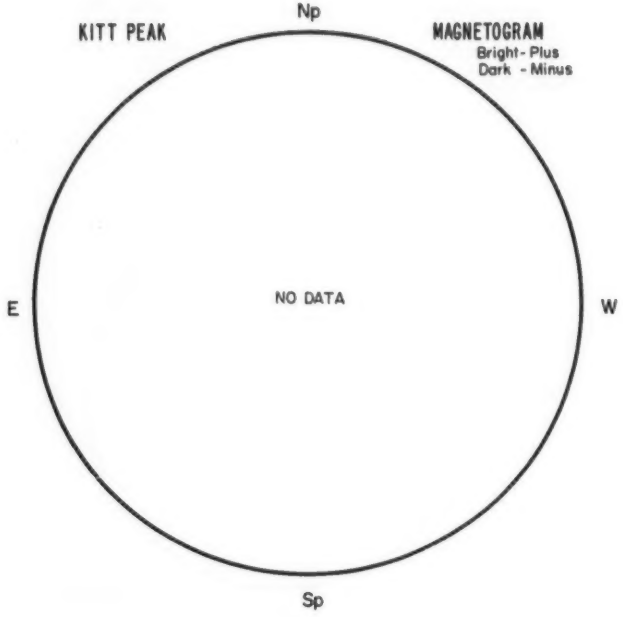
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

DELTAY =
DELTAX =

E NO DATA W

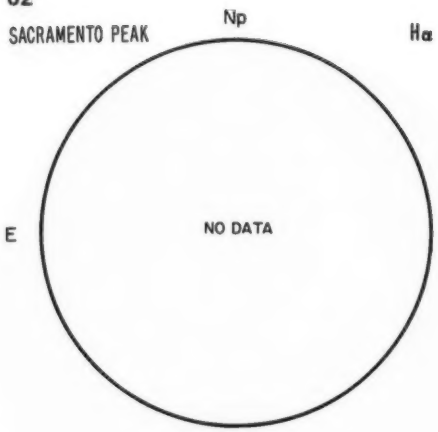
Sp

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

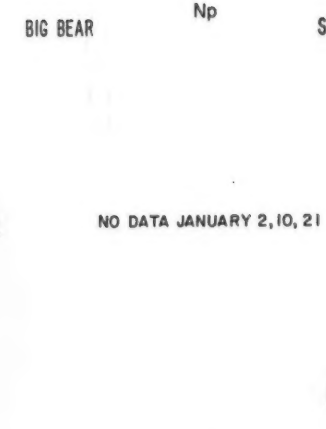
02

SACRAMENTO PEAK



Hα

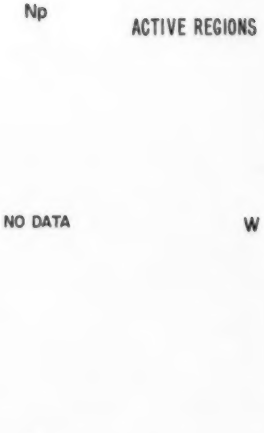
BIG BEAR



SUNSPOTS

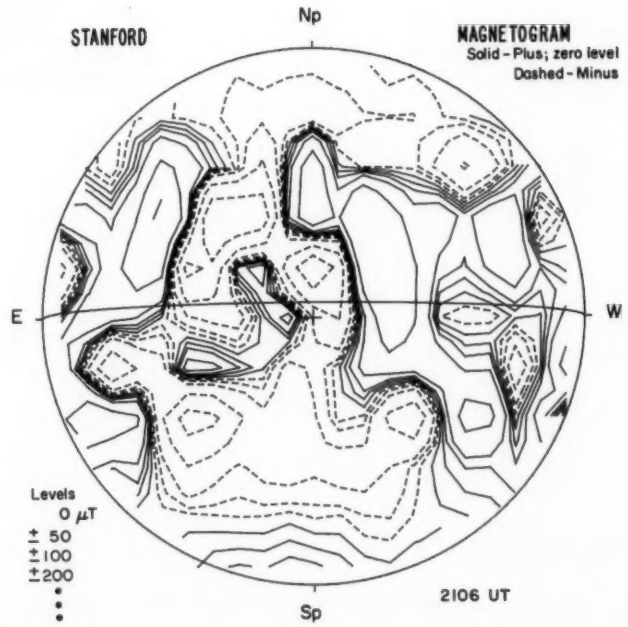
BIG BEAR

ACTIVE REGIONS



BOULDER PROMINENCES

STANFORD



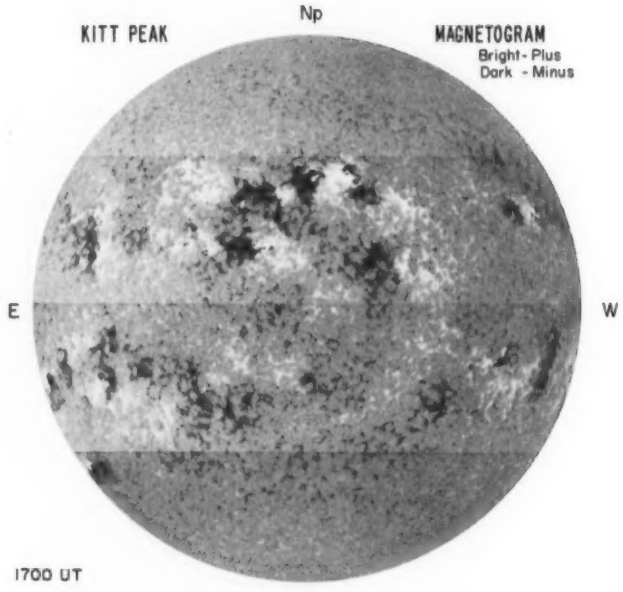
JANUARY 3, 1982 (P= 1.21, B_o =-3.26, L_o = 350.55)

SACRAMENTO PEAK Np CORONA 5303 Å

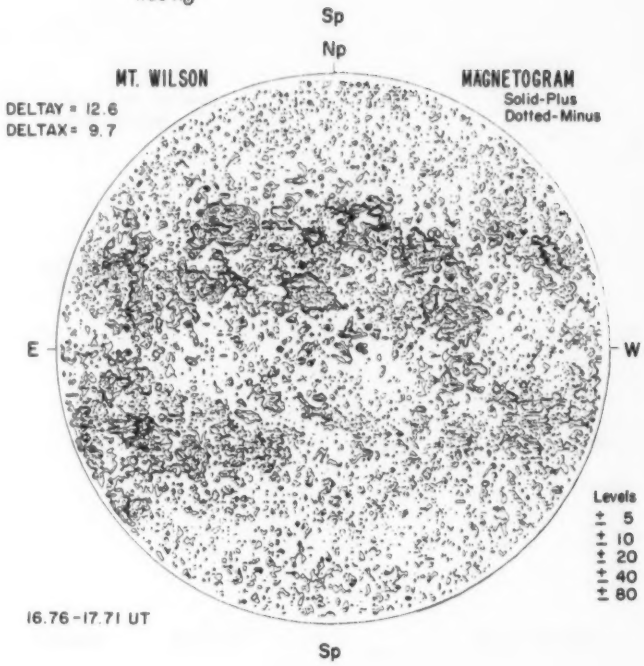
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK



MT. WILSON



Sp

03

BOULDER

Np

Hα

E

NO DATA

W

Sp

BIG BEAR

Np

SUNSPOTS

E

111
124
125
116
113
106
105
123
121
117

W

2030 UT

Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR

Np

ACTIVE REGIONS

E

112
125
111
118
107
105
119
116
113
106
120
123
117
115
121
103
073
104
102
122

W

1700 UT

Sp

GOOD	WM

02- 3000-2.0
03- 0400-2.5
05- 1300-2.5
07- 1400-3.5
11- 3500-3.5
12- 2700-2.5
13- 2000-2.5
19- 2000-2.5
21- 1600-2.5
22- 2000-2.5
23- 0900-2.5
24- 0900-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E

NO DATA

W

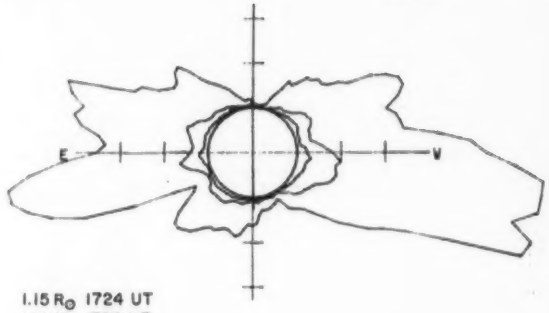
Levels
0 μT
± 50
±100
±200
•
•
•

Sp

63
Jan 82

JANUARY 4, 1982 (P= 0.73, B_o=-3.37, L_o= 337.38)

SACRAMENTO PEAK Np CORONA
5303 Å

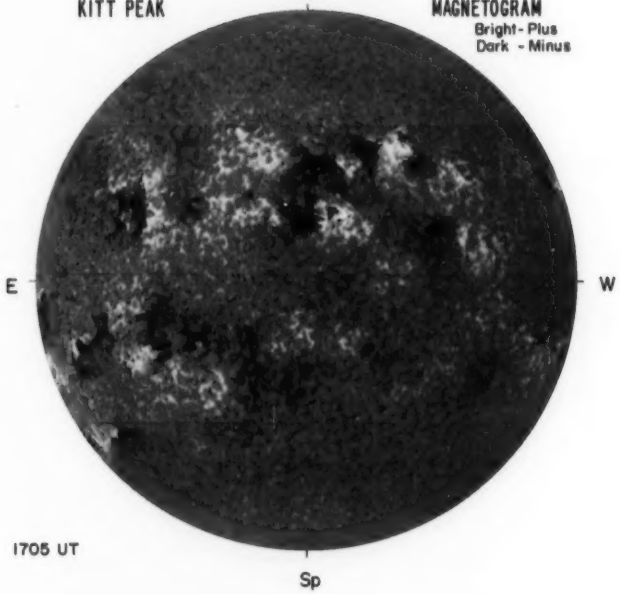


1.15 $R_\odot$ 1724 UT
1.35 $R_\odot$ 1703 UT
1.55 $R_\odot$ 1712 UT

Sp

Np

KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



1705 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

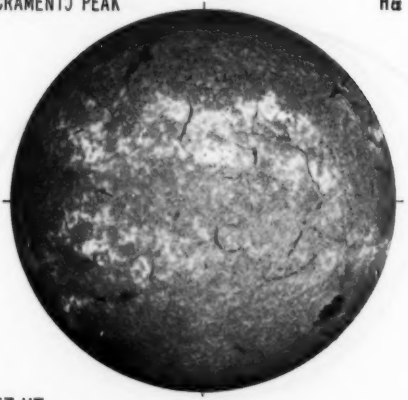
Sp

Sp

Sp

04

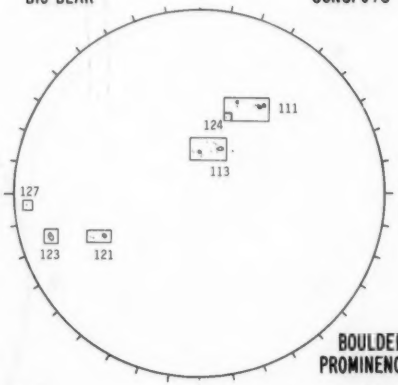
SACRAMENTO PEAK Np Hα



E W

1517 UT Sp

BIG BEAR Np SUNSPOTS



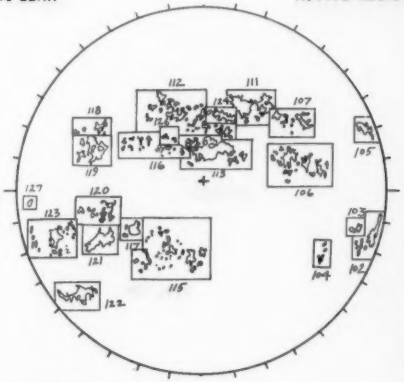
E W

1705 UT Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS



E W

1705 UT Sp

GOOD	WM
03- 0300-2.5	
05- 1400-2.5	
07- 1100-3.5	
11- 3500-3.5	
13- 2000-2.5	
19- 1900-2.5	
21- 1600-2.5	
22- 2400-2.5	
23- 2000-2.5	
27- 0300-2.5	

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•

Sp

JANUARY 5, 1982 (P= 0.24, B_o = -3.49, L_o = 324.21)

SACRAMENTO PEAK Np CORONA 5303 Å

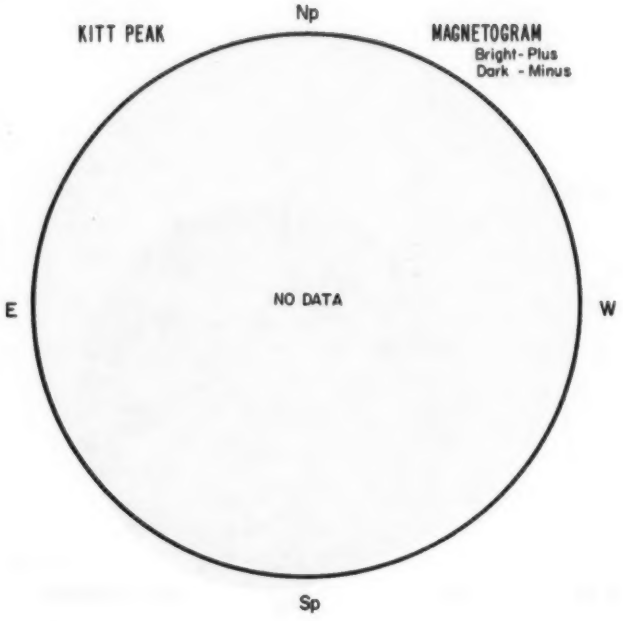
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

05

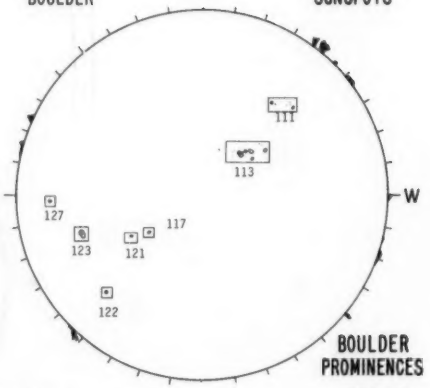
SACRAMENTO PEAK Np Hα

E W

NO DATA

Sp

BOULDER Np SUNSPOTS



E W E

1530 UT

Sp

BOULDER PROMINENCES

1600 UT

BIG BEAR Np

NO DATA

Sp

ACTIVE REGIONS

E W

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

67

Jan 82

JANUARY 6, 1982 (P=-0.24, B_o=-3.60, L_o=311.04)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

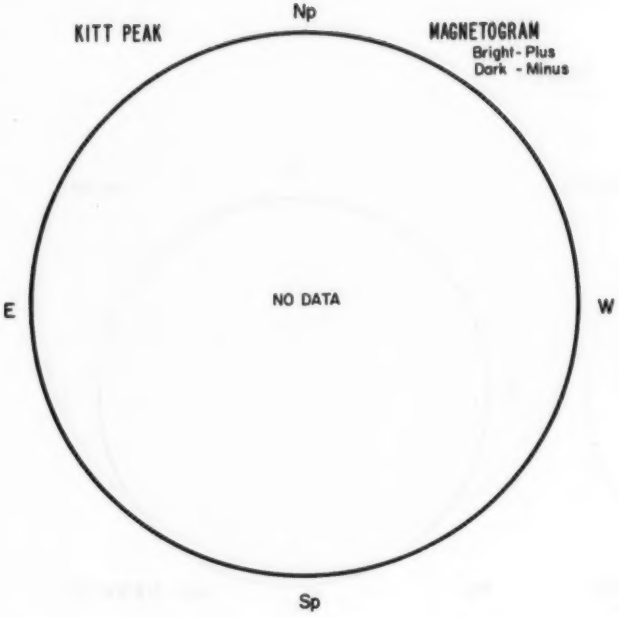
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus



MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

NO DATA

W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

06

SACRAMENTO PEAK

Np

Hα

E

NO DATA

W

Sp

BIG BEAR

Np

SUNSPOTS

E

W

113

123

128

121

122

1645 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS

NO DATA

W

BOULDER PROMINENCES

NO DATA

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

1918 UT

Sp

JANUARY 7, 1982 (P=-0.73, B_o=-3.71, L_o= 297.87)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

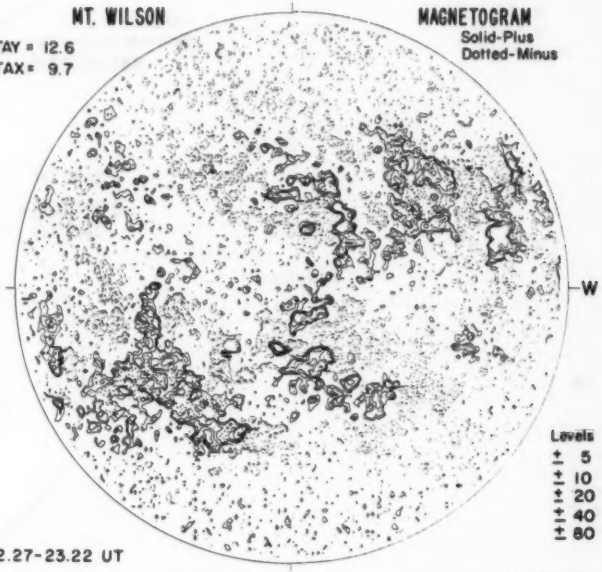
KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

E NO DATA W

Sp

MT. WILSON Np MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.7

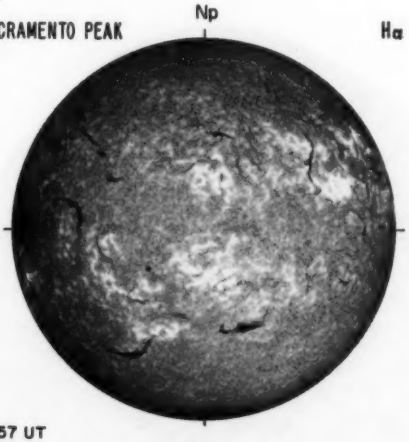


22.27-23.22 UT

Sp

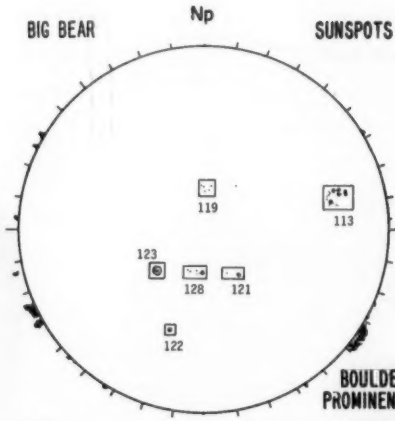
07

SACRAMENTO PEAK Hα



1657 UT

BIG BEAR SUNSPOTS



1855 UT

BIG BEAR

BOULDER PROMINENCES

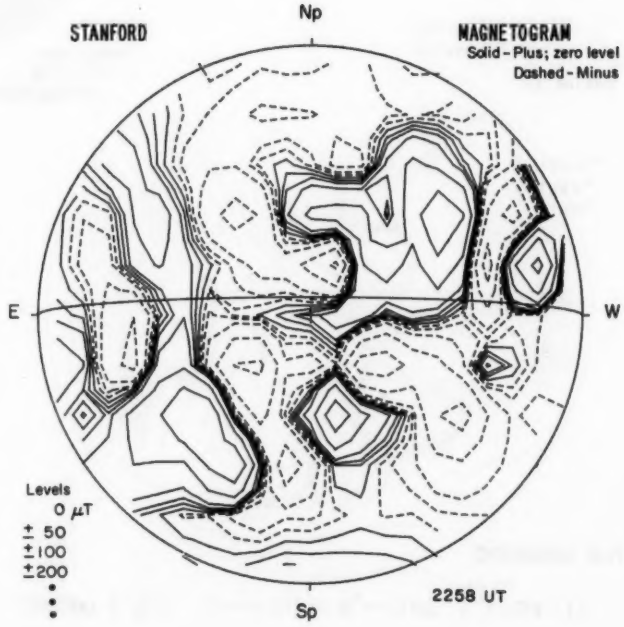
1515 UT

ACTIVE REGIONS

NO DATA

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2258 UT

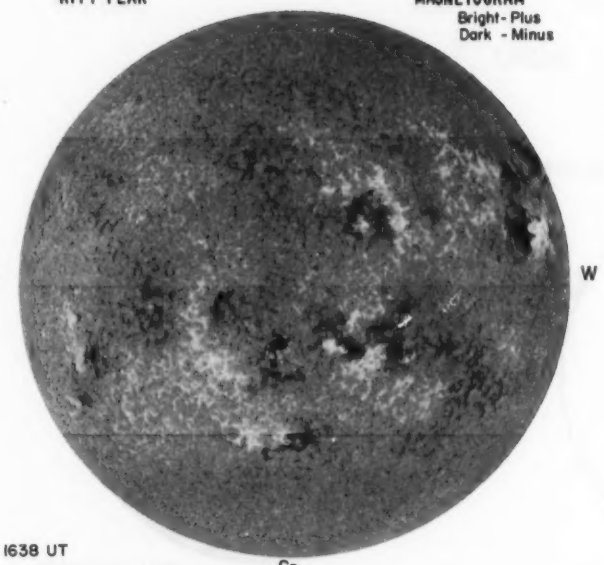
JANUARY 8, 1982 (P=-1.21, B_o=-3.82, L_o=284.71)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

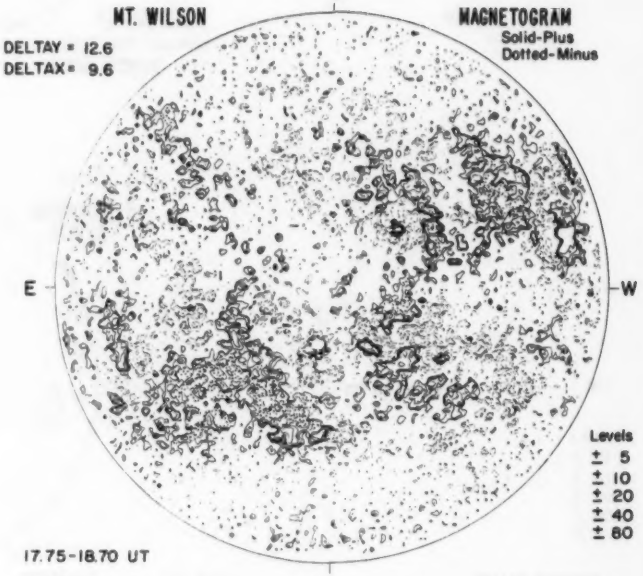
KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus



1638 UT

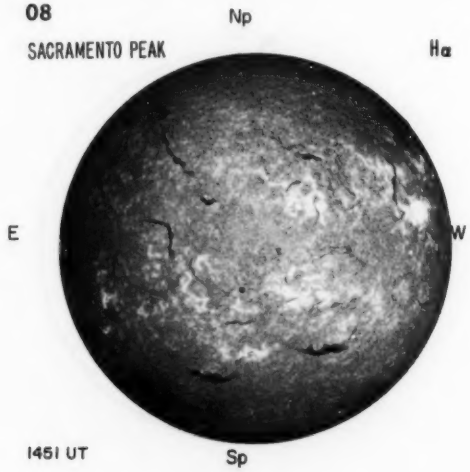
Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

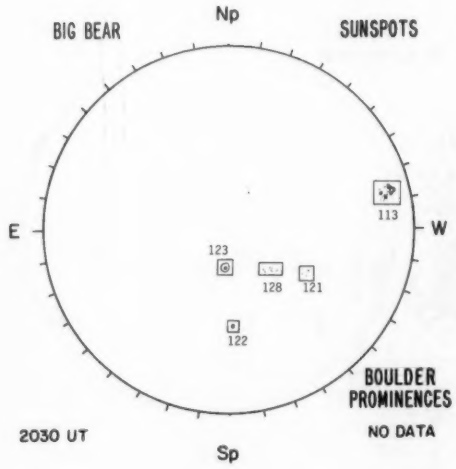
DELTAY = 12.6
DELTAX = 9.6

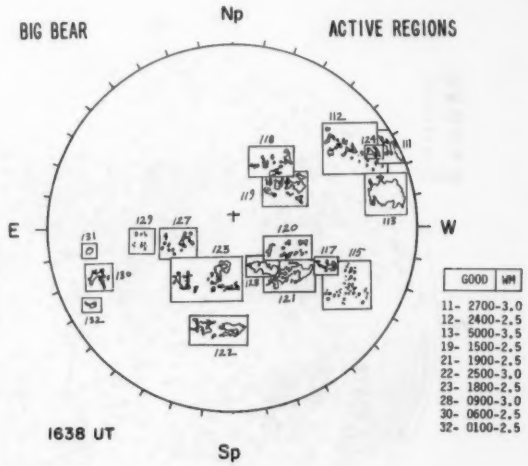


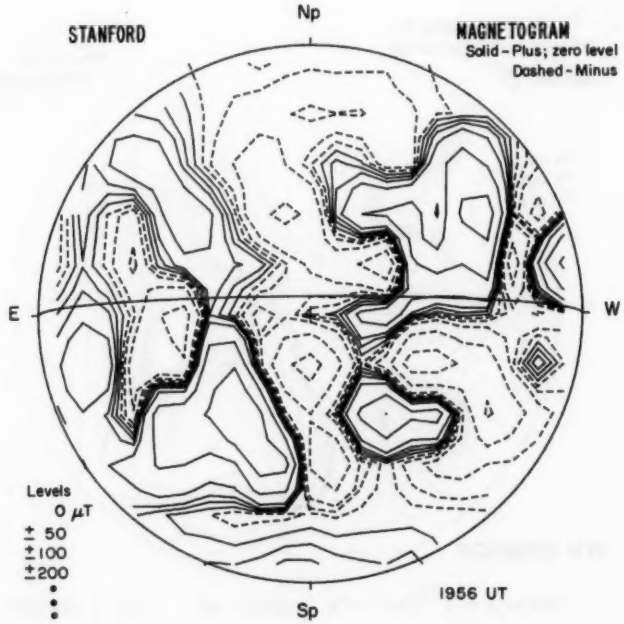
17.75-18.70 UT

08


Np
SACRAMENTO PEAK
Hα
E
W
1451 UT
Sp


Np
BIG BEAR
SUNSPOTS
E
W
113
123
128
121
122
BOULDER
PROMINENCES
NO DATA
2030 UT
Sp


Np
BIG BEAR
ACTIVE REGIONS
E
W
GOOD
NM
11- 2700-3.0
12- 2400-2.5
13- 5000-3.5
19- 1500-2.5
21- 1900-2.5
22- 2500-3.0
23- 1800-2.5
28- 0900-3.0
30- 0600-2.5
32- 0100-2.5
1638 UT
Sp


Np
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
1956 UT
Sp

JANUARY 9, 1982 (P=-1.69, B_o=-3.93, L_o=271.54)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus

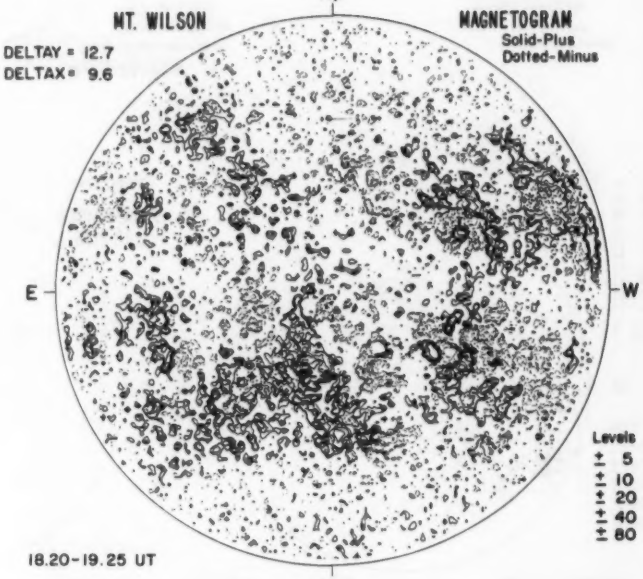
E NO DATA W

Sp

Sp

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



18.20-19.25 UT

Sp

Sp

09

SACRAMENTO PEAK

Np

Hα

E

NO DATA

W

Sp

BIG BEAR

Np

SUNSPOTS

BIG BEAR

E

133

123

123

128

113

121

122

W E

BOULDER PROMINENCES

1945 UT

Sp

1735 UT

Np

ACTIVE REGIONS

NO DATA

W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

Sp

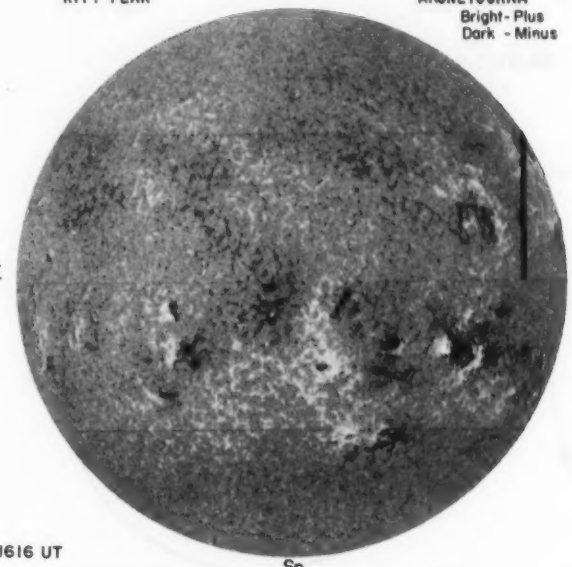
2226 UT

JANUARY 10, 1982 (P=-2.17, B_o=-4.04, L_o=258.37)

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1616 UT

Sp

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

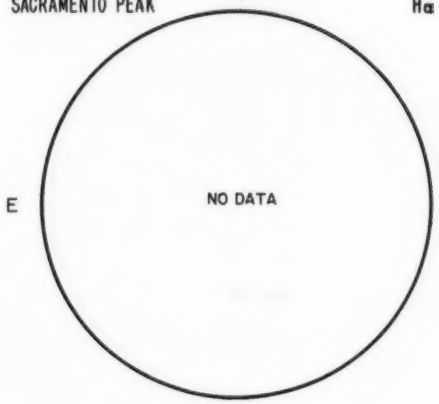
Sp

10

SACRAMENTO PEAK

Np

Hα



Sp

BIG BEAR

Np

E

NO DATA

W

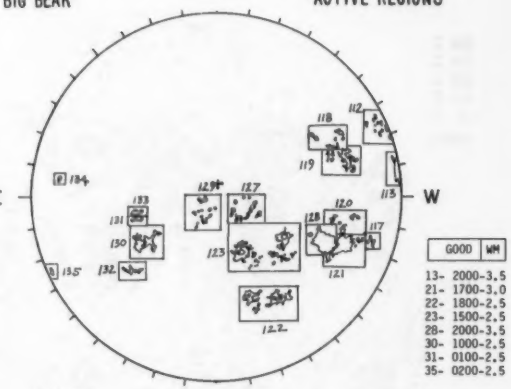
Sp

SUNSPOTS

BIG BEAR

Np

ACTIVE REGIONS



BOULDER PROMINENCES

1616 UT

Sp

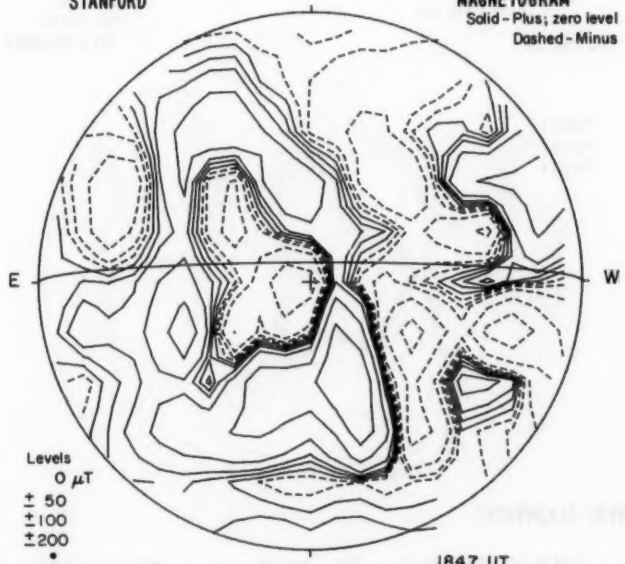
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1847 UT

Sp

77

Jan 82

JANUARY 11, 1982 (P=-2.65, B_o=-4.14, L_o=245.20)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

E NO DATA W

Sp

Sp
Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

E W

Levels
± 5
± 10
± 20
± 40
± 80

17.73 - 18.68 UT

Sp

Sp

Sp

11

SACRAMENTO PEAK

Np

Hα

E

NO DATA

W

Sp

BIG BEAR

Np

SUNSPOTS

E

W

123

128

128

122

BOULDER PROMINENCES

2130 UT

2125 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS

NO DATA

W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

2137 UT

Sp

JANUARY 12, 1982 (P=-3.13, B_o=-4.25, L_o=232.03)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 R_C
1.55 $R_\odot$

Sp

Np

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark - Minus

E NO DATA W

Sp

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

E W

Levels
± 5
± 10
± 20
± 40
± 80

17.54-18.49 UT

Sp

17.54-18.49 UT

Sp

Sp

12

SACRAMENTO PEAK

Np

Hα

NO DATA

E

W

Sp

BIG BEAR

Np

1855 UT

E

W

137

123

128

Sp

SUNSPOTS

BOULDER PROMINENCES

NO DATA

BIG BEAR

Np

NO DATA

E

W

Sp

ACTIVE REGIONS

STANFORD

Np

NO DATA

E

W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

•

81

Jan 82

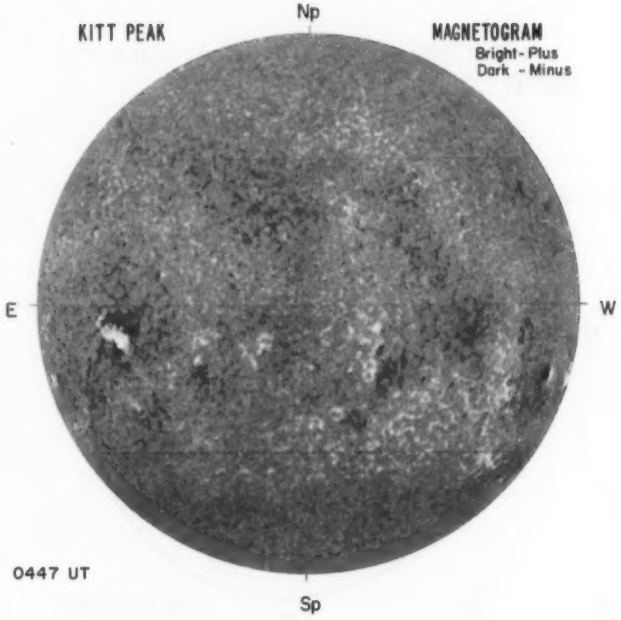
JANUARY 13, 1982 (P=-3.60, B_o=-4.35, L_o=218.86)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

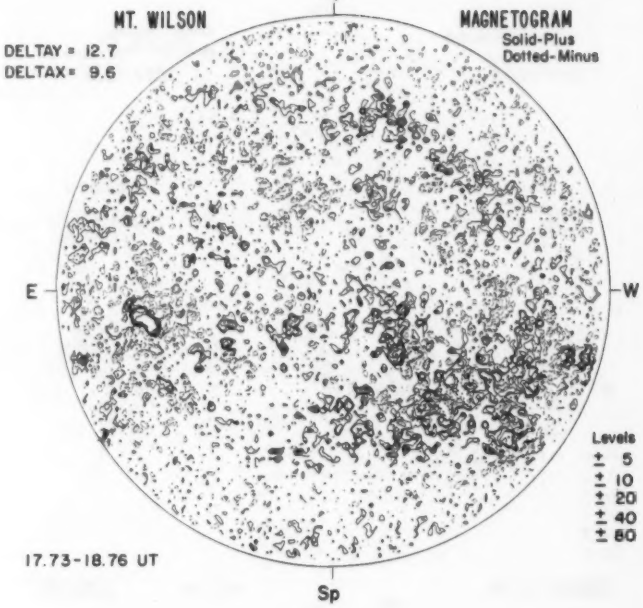
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK MAGNETOGRAM
Bright-Plus
Dark -Minus



0447 UT

Sp
Np
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX= 9.6



17.73-18.76 UT

Sp

13

SACRAMENTO PEAK Np Hα

E NO DATA W

Sp

BIG BEAR Np SUNSPOTS

E 137 123 128 W

2045 UT Sp 1700 UT

BOULDER PROMINENCES

BIG BEAR Np ACTIVE REGIONS

E 136 137 144 133 131 130 129 127 126 123 122 W

GOOD	WM

22- 1200-2,5
28- 3000-3,5
36- 0200-2,5
37- 2800-3,5

1617 UT Sp

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
± 100
± 200

Sp

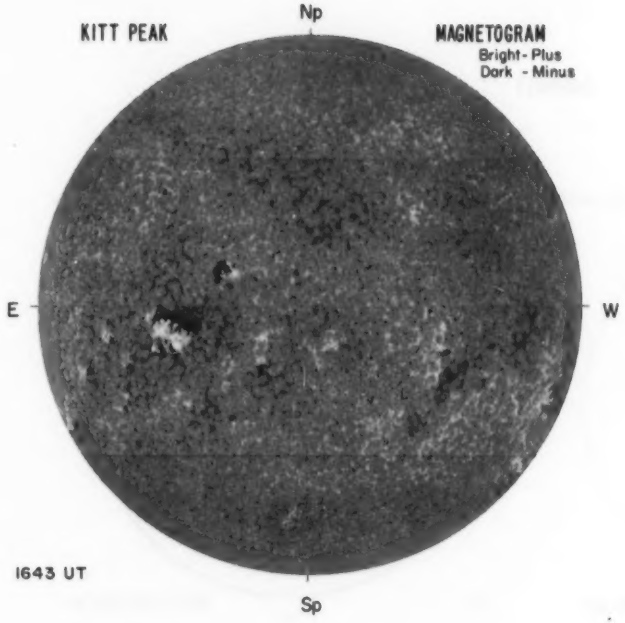
JANUARY 14, 1982 (P=-4.08, B_o=-4.45, L_o= 205.69)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

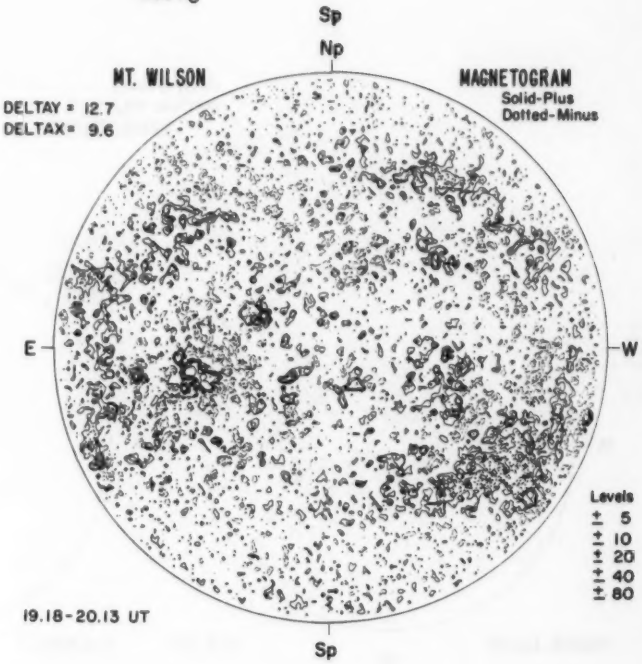


MAGNETOGRAM
Bright - Plus
Dark - Minus

1643 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.6

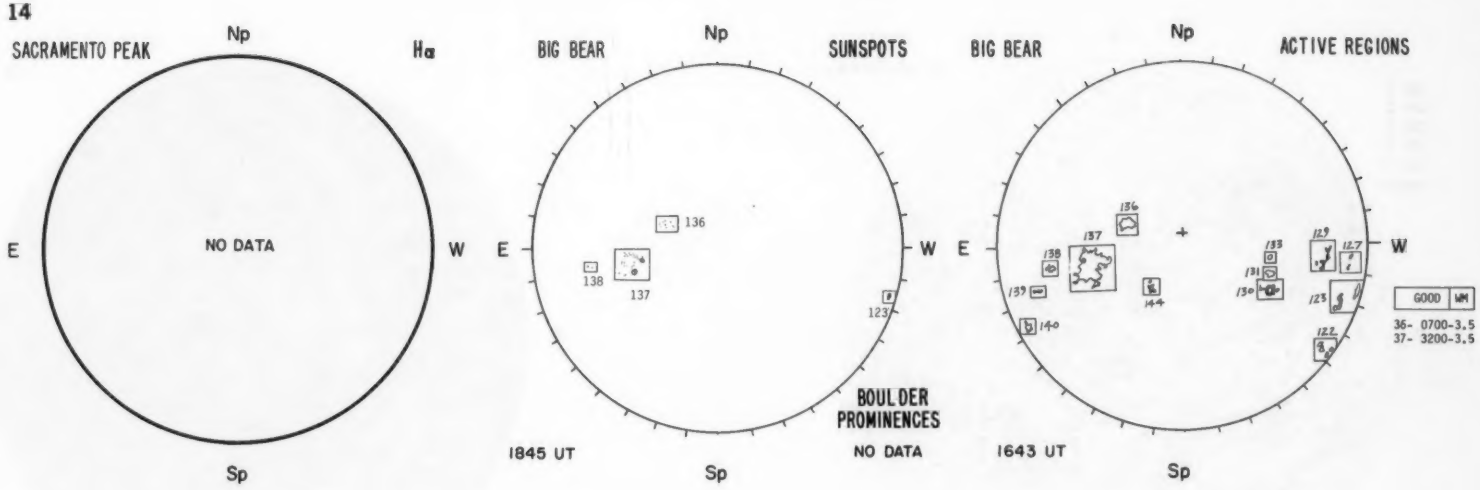


MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
±1 5
±1±1 10
±1±1±1 20
±1±1±1±1 40
±1 80

19.18-20.13 UT

14



STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

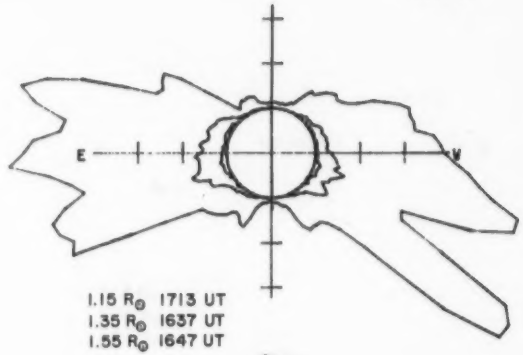
±100

±200

Sp

JANUARY 15, 1982 (P=-4.55, B_o=-4.56, L_o=192.53)

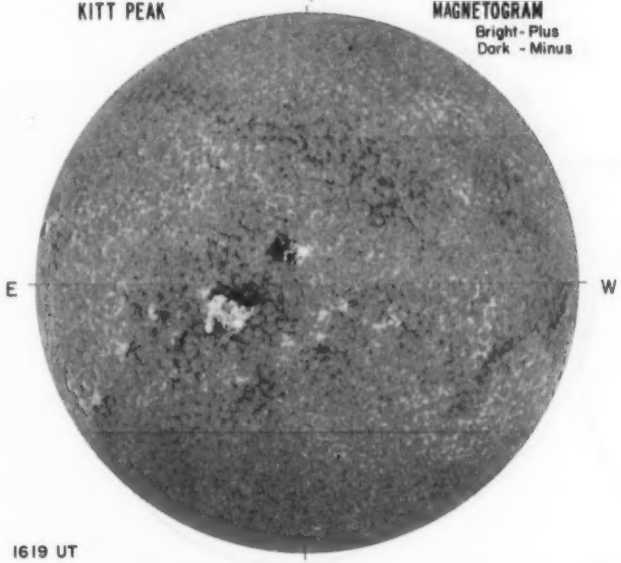
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1713 UT
1.35 $R_\odot$ 1637 UT
1.55 $R_\odot$ 1647 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

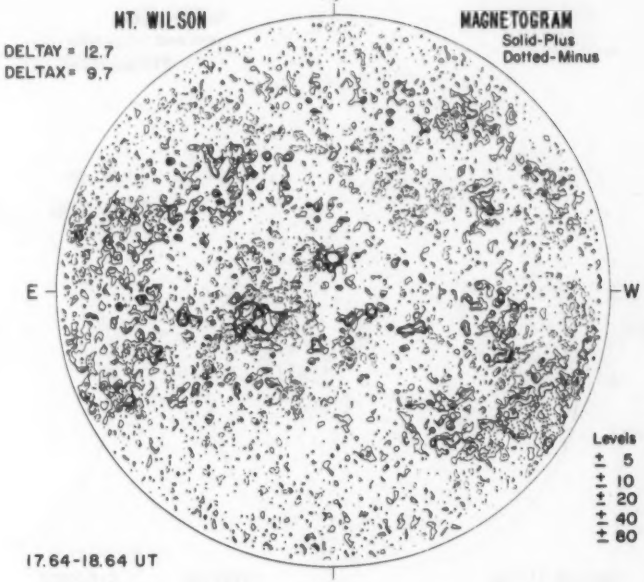


1619 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

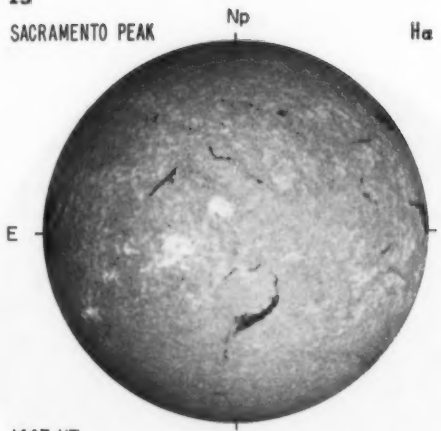


17.64-18.64 UT

Sp

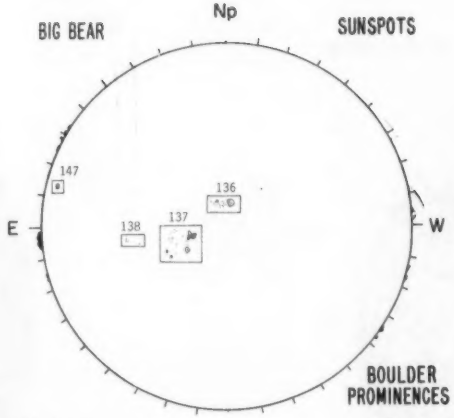
15

SACRAMENTO PEAK Hα



1447 UT

BIG BEAR SUNSPOTS

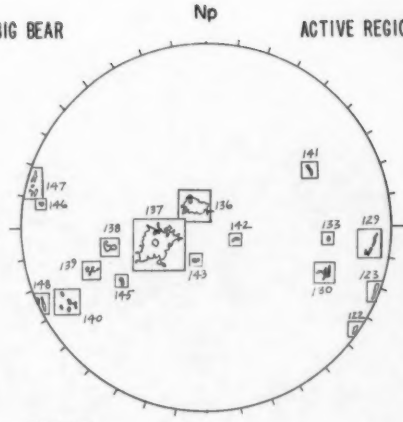


2010 UT

BOULDER PROMINENCES

1654 UT

BIG BEAR ACTIVE REGIONS



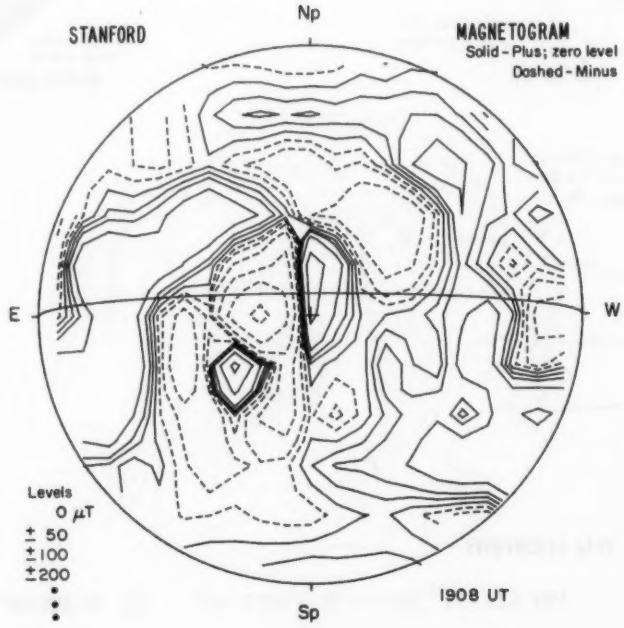
	GOOD	WM
36-	1400	3.5
37-	3500	3.5
38-	0300	3.0
39-	0100	3.0
40-	0500	2.5
48-	0600	2.5

1643 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level

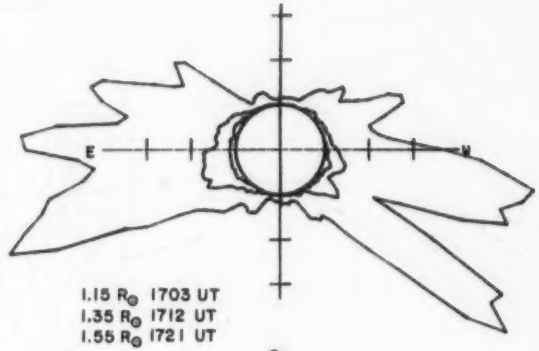
Dashed - Minus



1908 UT

JANUARY 16, 1982 (P=-5.02, B_o=-4.65, L_o=179.36)

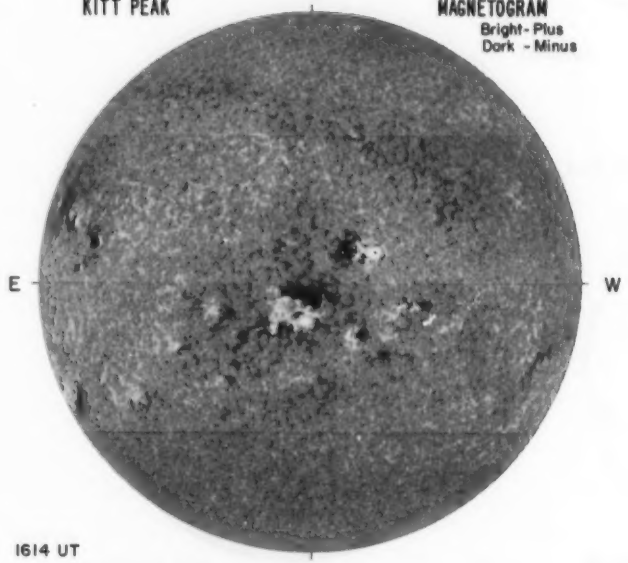
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1703 UT
1.35 $R_\odot$ 1712 UT
1.55 $R_\odot$ 1721 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

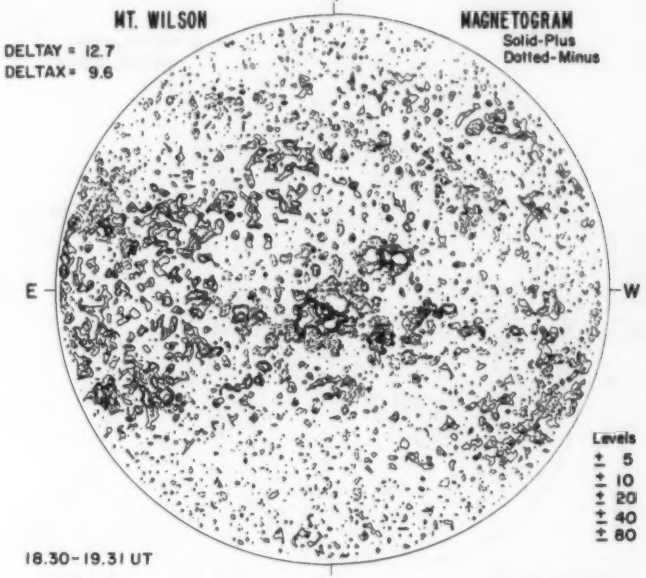


1614 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



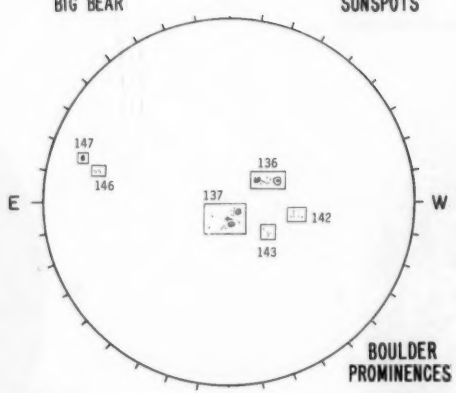
18.30-19.31 UT

Sp

SACRAMENTO PEAK Hα

1506 UT

BIG BEAR SUNSPOTS

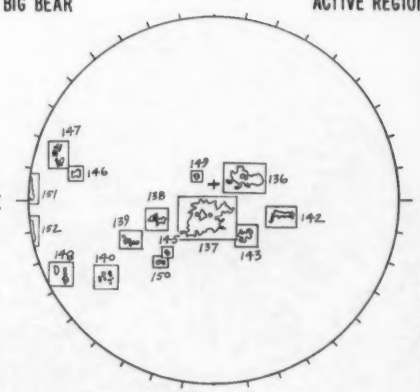


1910 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS

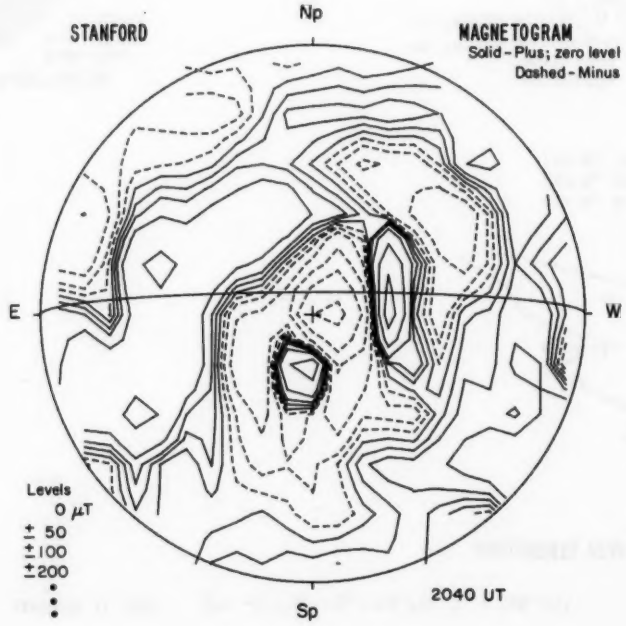


1614 UT

GOOD	NM
36- 1500-3.5	
37- 3500-3.5	
42- 0500-3.0	
43- 0500-2.5	
46- 0200-3.0	
48- 0600-2.5	
51- 1000-2.5	
52- 1000-2.5	

STANFORD MAGNETOGRAM

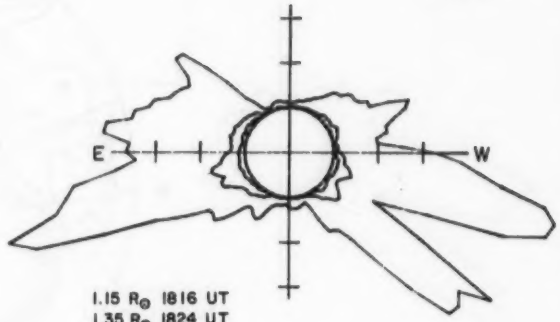
Solid - Plus; zero level
Dashed - Minus



2040 UT

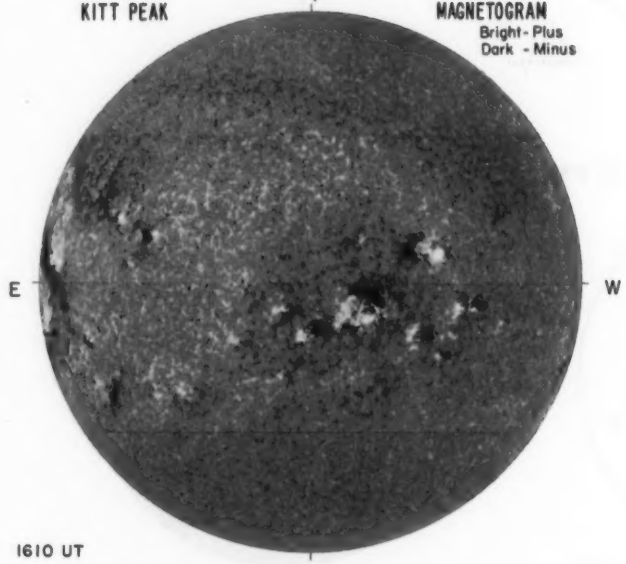
JANUARY 17, 1982 (P= -5.48, B_o=-4.75, L_o=166.19)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1816 UT
1.35 $R_\odot$ 1824 UT
1.55 $R_\odot$ 1834 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

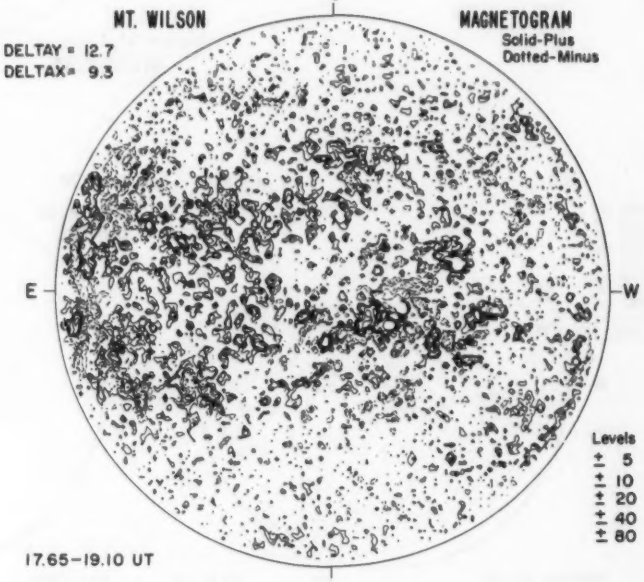


1610 UT

Sp
Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX= 9.3



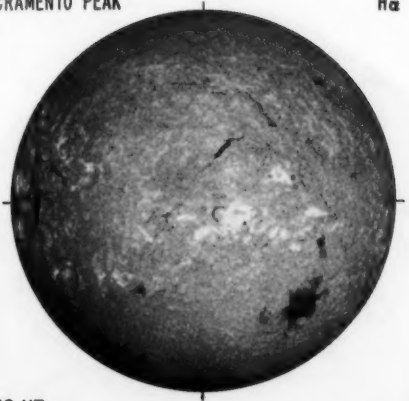
17.65-19.10 UT

Sp

Sp

17

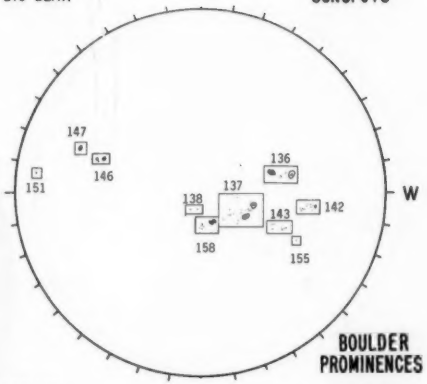
SACRAMENTO PEAK Np Hα



E W

1509 UT Sp

BIG BEAR Np SUNSPOTS



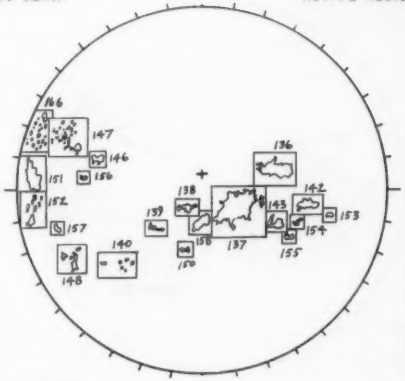
E W

1940 UT Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS



E W

1610 UT Sp

GOOD	MM
36- 1500-3.5	
37- 3700-3.5	
38- 0300-2.5	
42- 0700-4.0	
43- 0400-2.5	
46- 0300-2.5	
48- 0600-2.5	
51- 2100-2.5	
58- 0600-3.5	

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

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•

•

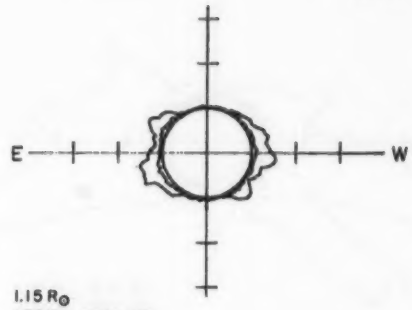
Sp

JANUARY 18, 1982 (P=-5.95, B_o=-4.85, L_o=153.02)

SACRAMENTO PEAK

Np

CORONA
5303 Å



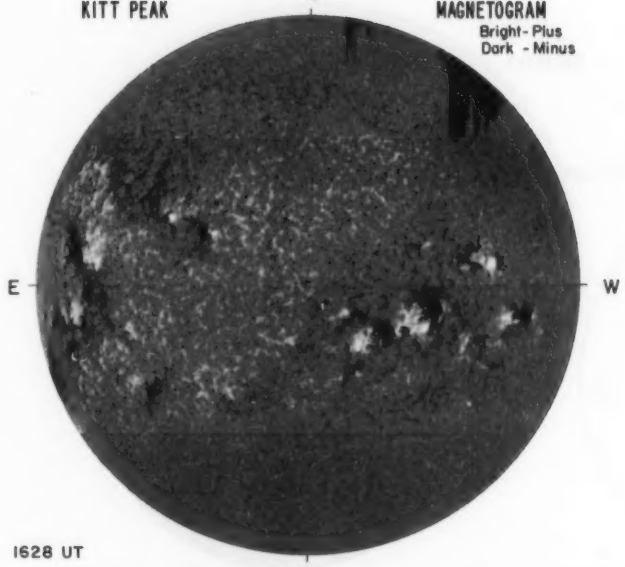
1.15 $R_\odot$
1.35 $R_\odot$ 2019 UT
1.55 $R_\odot$ 2028 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



1628 UT

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E

NO DATA

W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

18

SACRAMENTO PEAK

Np

Hα

E

W

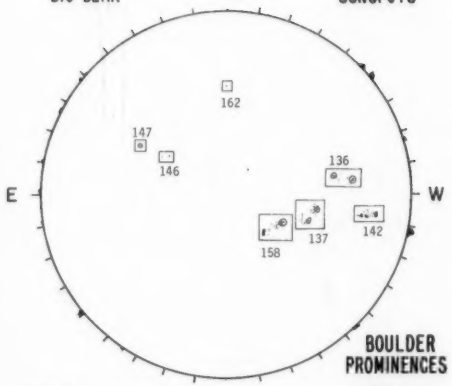
1455 UT

Sp

BIG BEAR

Np

SUNSPOTS



E

W

1735 UT

Sp

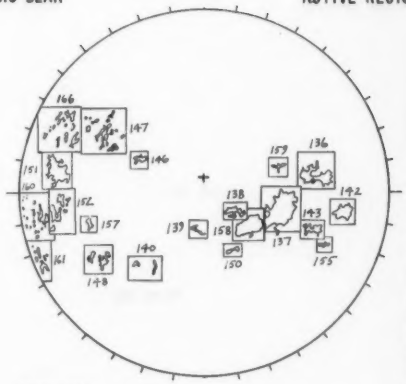
BOULDER PROMINENCES

1706 UT

BIG BEAR

Np

ACTIVE REGIONS



E

W

1628 UT

Sp

POOR	WM

36- 1800-3.0
37- 4000-3.5
38- 0400-3.0
42- 1200-4.0
46- 0200-3.0
48- 0700-2.5
51- 2400-3.0
52- 1000-2.5
58- 2000-3.5
61- 1000-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

Sp

93

Jan 82

JANUARY 19, 1982 (P=-6.41, B_o=-4.94, L_o= 139.86)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

NO DATA

W

E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

Sp

Sp

19

SACRAMENTO PEAK

Np

Hα

E

NO DATA

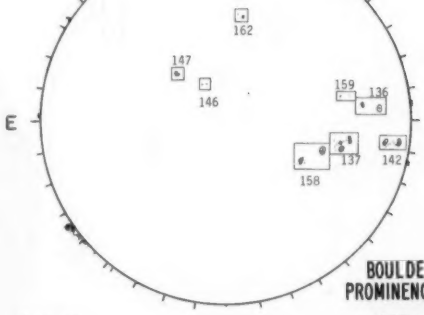
W

Sp

BIG BEAR

Np

SUNSPOTS



E

W

1630 UT

Sp

BIG BEAR

Np

E

W

1655 UT

BOULDER PROMINENCES

Sp

ACTIVE REGIONS

Np

NO DATA

W

Sp

STANFORD

Np

E

NO DATA

W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

95

Jan 82

JANUARY 20, 1982 (P=-6.87, B_o=-5.04, L_o=126.69)

SACRAMENTO PEAK Np CORONA 5303 Å

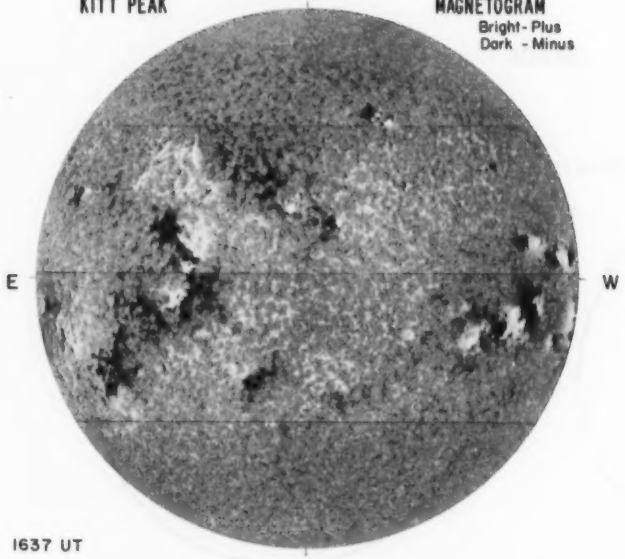
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

20

SACRAMENTO PEAK

Np

Hα

E

NO DATA

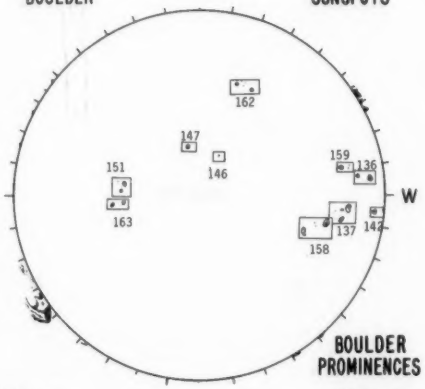
W

Sp

BOULDER

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

1525 UT

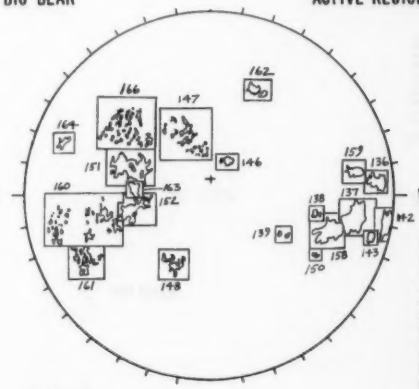
1630 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS



E

W

1637 UT

Sp

GOOD	WM

36- 2300-3.5
37- 3500-3.5
42- 2600-3.5
46- 0300-2.5
48- 0800-2.5
51- 2800-3.0
52- 1400-2.5
58- 2800-3.5
59- 0800-3.0
61- 1300-2.5
62- 0700-3.0
63- 0500-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

97

Jan 82

JANUARY 21, 1982 (P=-7.32, B_o=-5.13, L_o=113.52)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

Sp

Sp

21

SACRAMENTO PEAK

Np

Hα

BIG BEAR

Np

SUNSPOTS

BIG BEAR

Np

ACTIVE REGIONS

E W E

NO DATA

W E

NO DATA

W

1916 UT

Sp

Sp

Sp

BOULDER
PROMINENCES

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E

NO DATA

W

Levels
0 μT
± 50
±100
±200

Sp

THE UNIVERSITY OF MICHIGAN LIBRARIES

JANUARY 22, 1982 (P=-7.77, B_o=-5.22, L_o= 100.36)

SACRAMENTO PEAK Np CORONA 5303 Å

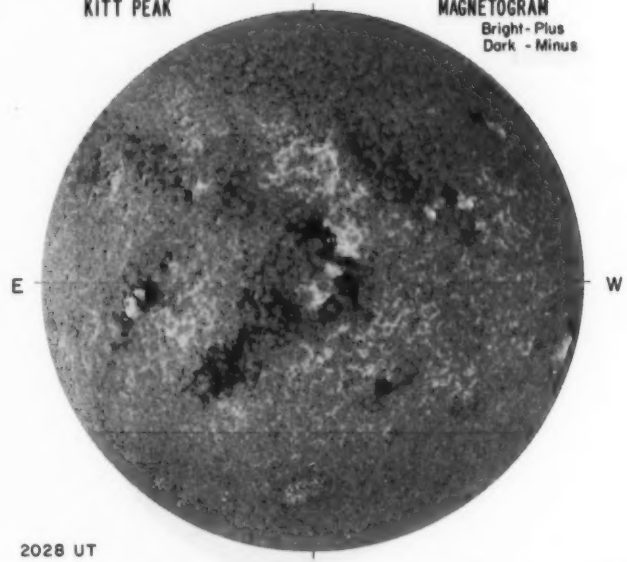
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



2028 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Sp

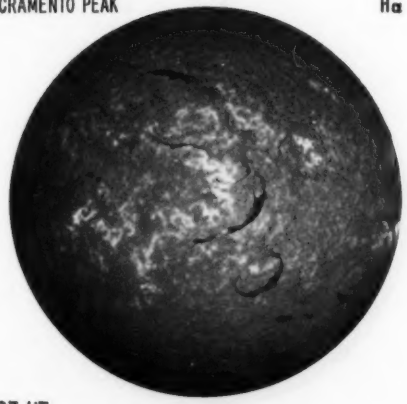
Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

Sp

22

SACRAMENTO PEAK Np Hα

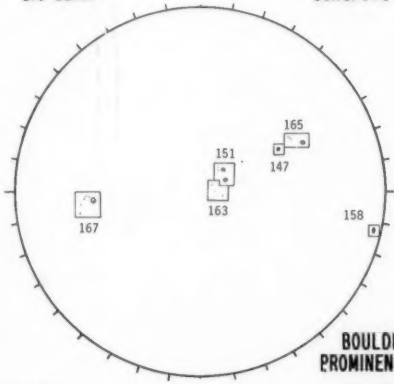


E W

1907 UT

Sp

BIG BEAR Np SUNSPOTS



E W

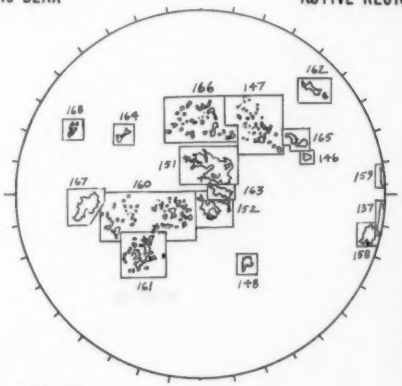
2140 UT

Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS



E W

2028 UT

Sp

FAIR	WN
37- 2200-3.5	
51- 3000-2.5	
52- 1000-2.5	
58- 2700-2.5	
59- 1200-3.5	
61- 0900-2.5	
62- 0700-2.5	
63- 0600-2.5	
67- 1700-3.0	

Np

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

•

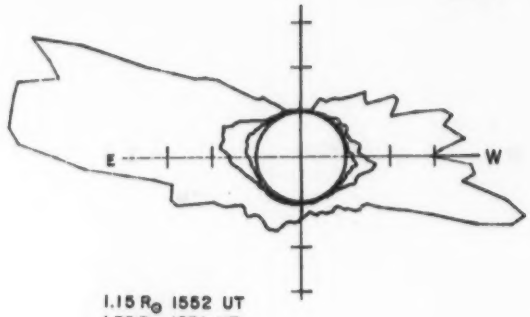
•

•

Sp

JANUARY 23, 1982 (P=-8.22, B_o=-5.31, L_o= 87.19)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1552 UT
1.35 $R_\odot$ 1531 UT
1.55 $R_\odot$ 1541 UT

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W

E NO DATA W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

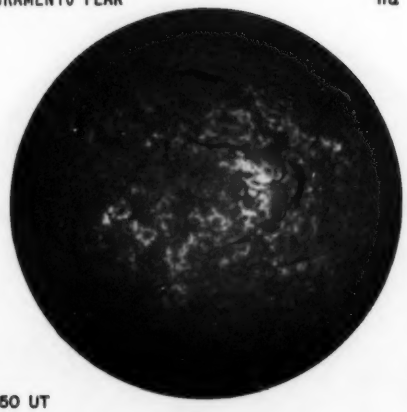
Sp Sp

23

SACRAMENTO PEAK

Np

Hα



E W

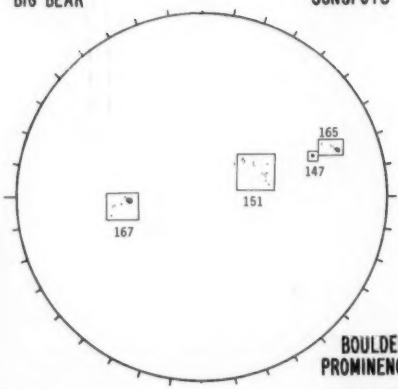
1450 UT

Sp

BIG BEAR

Np

SUNSPOTS



E W E

1900 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS

NO DATA

W

Sp

BOULDER PROMINENCES

NO DATA

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

••

Sp

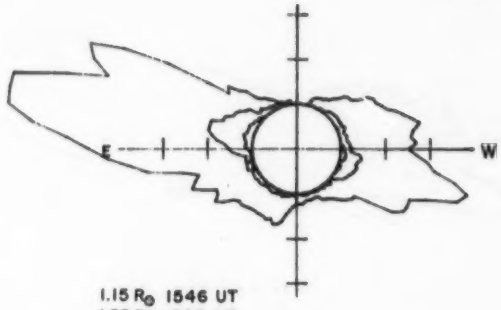
103

Jan 82

THE UNIVERSITY OF MICHIGAN LIBRARIES

JANUARY 24, 1982 (P=-8.66, B_o=-5.39, L_o=74.02)

SACRAMENTO PEAK Np CORONA 5303 Å

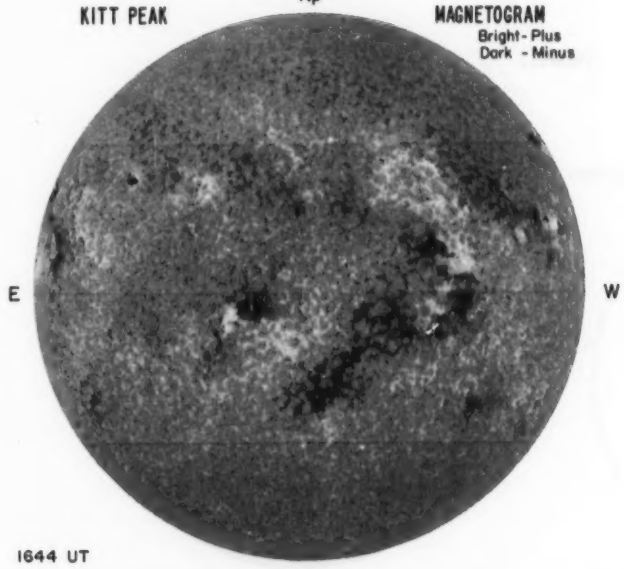


1.15 $R_\odot$ 1546 UT
1.35 $R_\odot$ 1525 UT
1.55 $R_\odot$ 1535 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1644 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

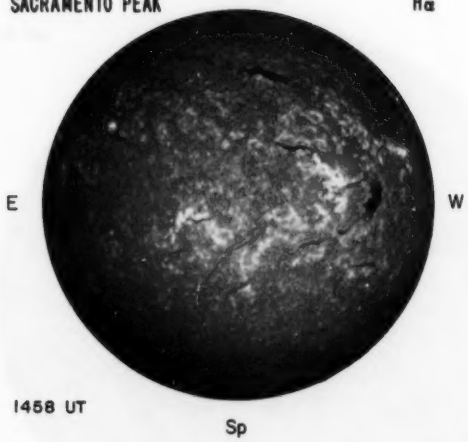
DELTAY =
DELTAX =

E NO DATA W

Sp

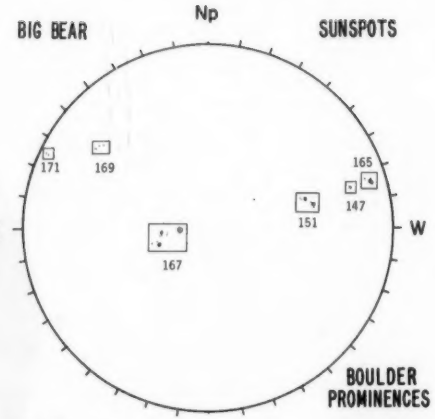
Levels
± 5
± 10
± 20
± 40
± 80

SACRAMENTO PEAK



1458 UT

BIG BEAR SUNSPOTS

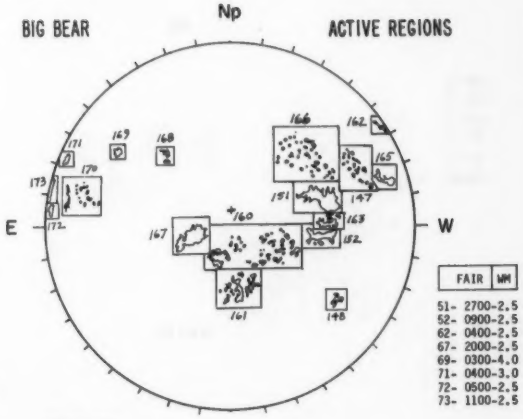


1910 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS

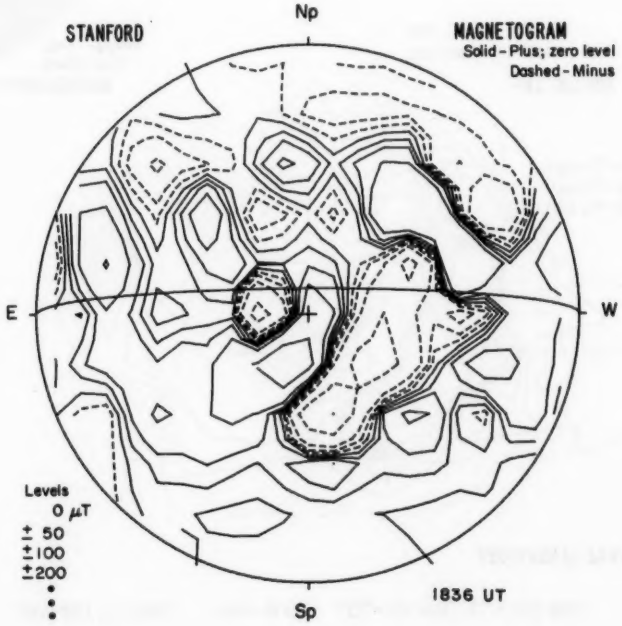


1644 UT

FAIR	WM
51- 2700-2.5	
52- 0900-2.5	
62- 0400-2.5	
67- 2000-2.5	
69- 0300-4.0	
71- 0400-3.0	
72- 0500-2.5	
73- 1100-2.5	

STANFORD MAGNETOGRAM

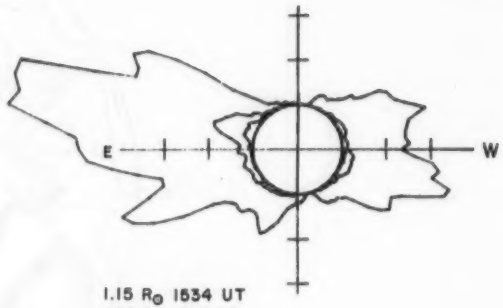
Solid - Plus; zero level
Dashed - Minus



1836 UT

JANUARY 25, 1982 (P=-9.11, B_o=-5.48, L_o= 60.86)

SACRAMENTO PEAK Np CORONA 5303 Å

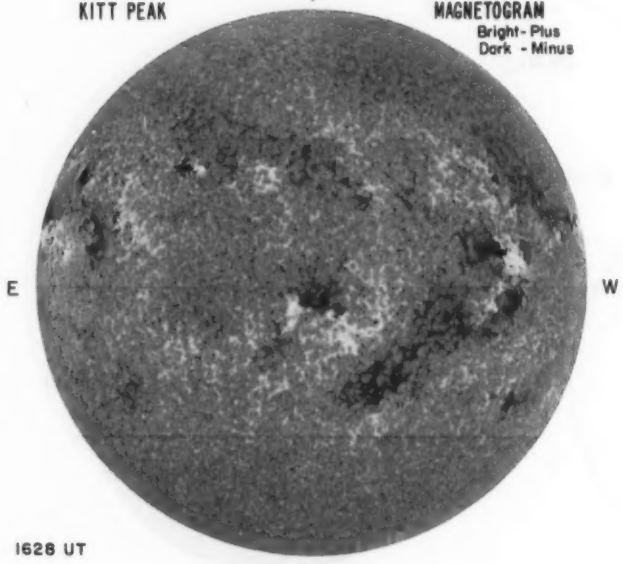


1.15 $R_\odot$ 1634 UT
1.35 $R_\odot$ 1514 UT
1.55 $R_\odot$ 1523 UT

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1628 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

Sp

25

SACRAMENTO PEAK

Np

Hα

E

W

1531 UT

Sp

BIG BEAR

Np

SUNSPOTS

171

169

173

165

147

151

167

E

W

BOULDER PROMINENCES

1835 UT

1647 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS

E

W

GOOD | WM

51- 2700-3.0
67- 1800-2.5
69- 0700-3.5
71- 0800-3.0
72- 0700-2.5
73- 4000-3.5

1628 UT

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

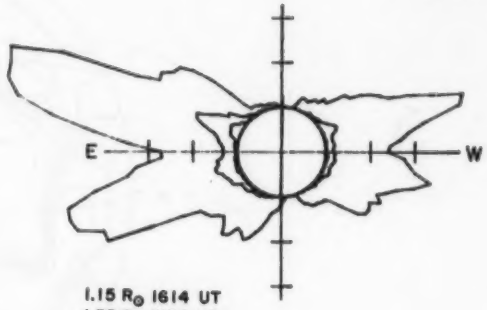
±200

2233 UT

Sp

JANUARY 26, 1982 (P=-9.54, B_o=-5.56, L_o=47.69)

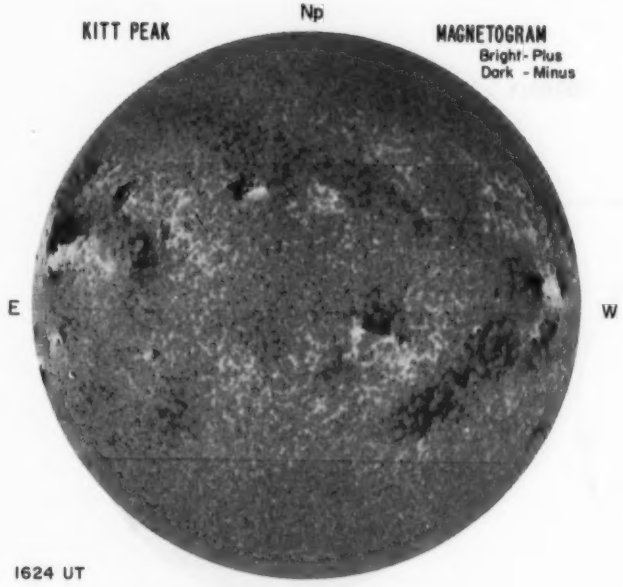
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1614 UT
1.35 $R_\odot$ 1554 UT
1.55 $R_\odot$ 1603 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

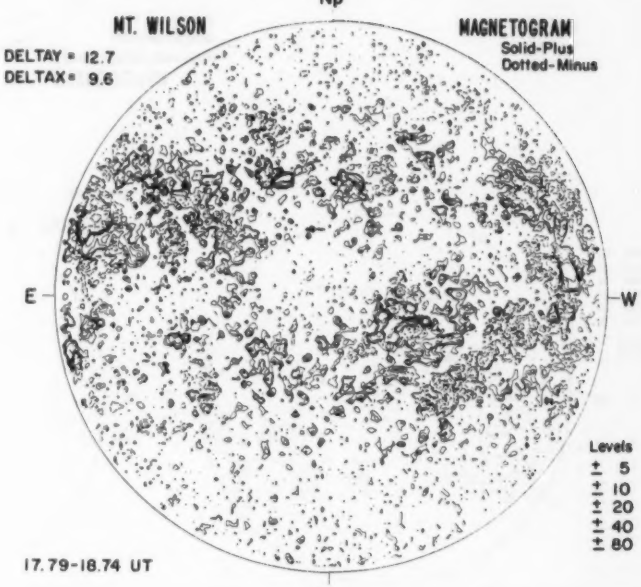


1624 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



17.79-18.74 UT

Sp

Sp

Sp

26

SACRAMENTO PEAK

Np

Hα

E W

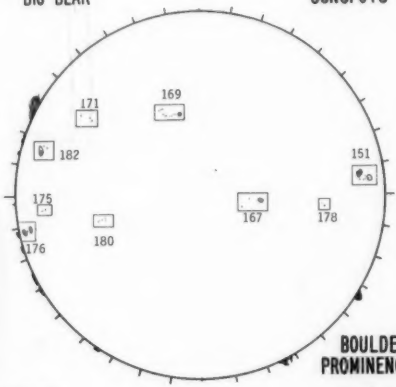
1520 UT

Sp

BIG BEAR

Np

SUNSPOTS



E W

1830 UT

Sp

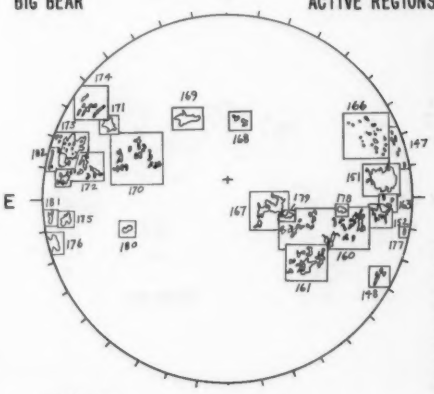
BOULDER PROMINENCES

1538 UT

BIG BEAR

Np

ACTIVE REGIONS



E W

1624 UT

Sp

FAIR | WWV

51- 3700-3.5
67- 1500-3.0
69- 0700-3.5
71- 0700-3.0
72- 1500-2.5
73- 2700-2.5
75- 0700-2.5
80- 0200-4.0
82- 1500-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

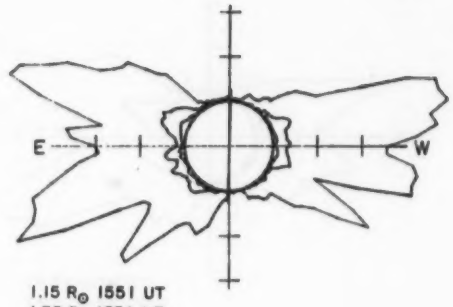
•

•

Sp

JANUARY 27, 1982 (P=-9.98, B_o=-5.65, L_o= 34.52)

SACRAMENTO PEAK Np CORONA
5303 Å

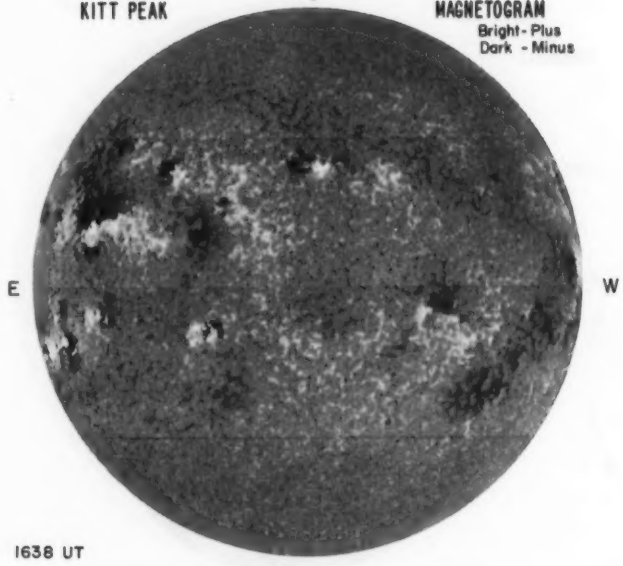


1.15 $R_\odot$ 1551 UT
1.35 $R_\odot$ 1531 UT
1.55 $R_\odot$ 1541 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1638 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

Sp

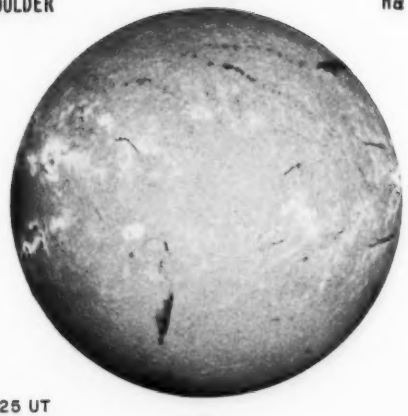
Sp

27

BOULDER

Np

Hα



E

W

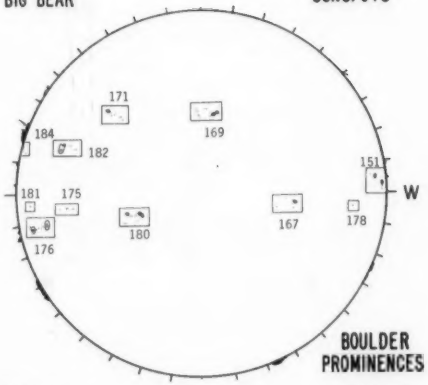
1525 UT

Sp

BIG BEAR

Np

SUNSPOTS



E

W

BOULDER PROMINENCES

1800 UT

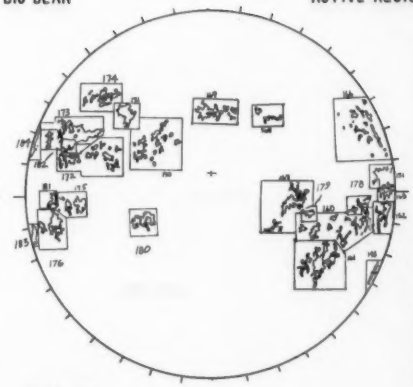
1746 UT

Sp

BIG BEAR

Np

ACTIVE REGIONS



E

W

FAIR+	MW
51- 3800-3.0	
67- 1700-2.5	
69- 0800-3.0	
71- 0900-3.0	
72- 1700-2.5	
73- 2700-2.5	
75- 0700-2.5	
76- 2600-3.5	
80- 0800-3.5	
81- 0300-2.5	
82- 1500-2.5	

1638 UT

Sp

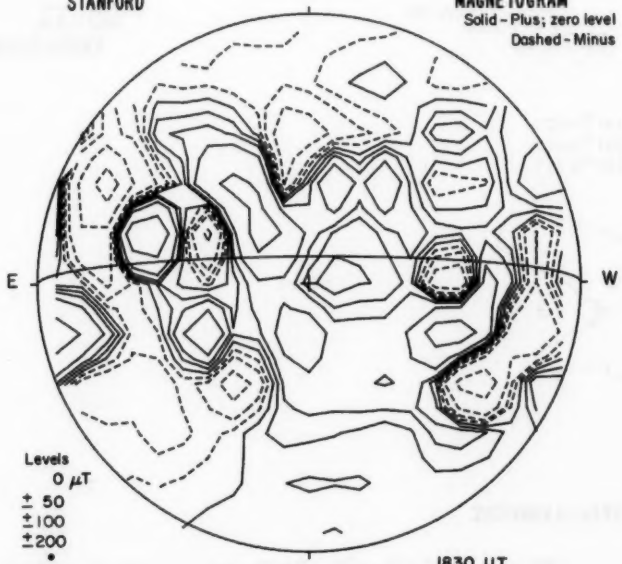
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

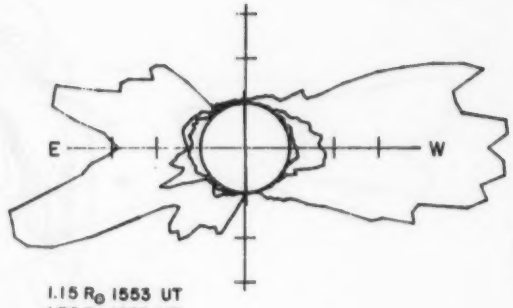
±200

1830 UT

Sp

JANUARY 28, 1982 (P=-10.41, B_o=-5.73, L_o=21.36)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1553 UT
1.35 $R_\odot$ 1602 UT
1.55 $R_\odot$ 1611 UT

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E NO DATA W

E NO DATA W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

Sp

Sp

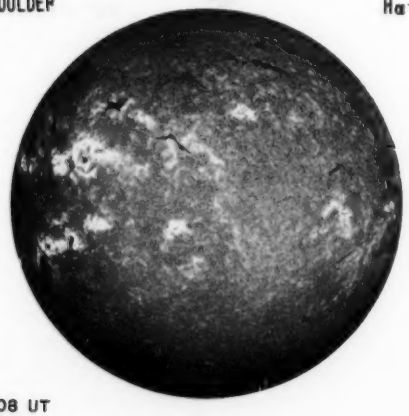
Sp

28

BOULDER

Np

Hα



E

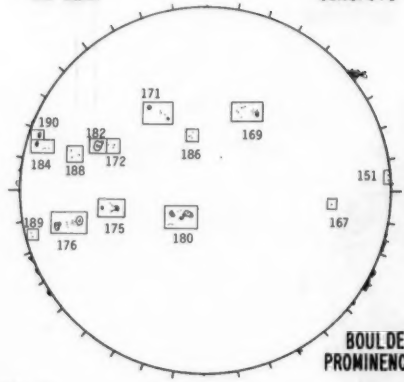
W

1608 UT

Sp

BIG BEAR

Np



E

W

E

1745 UT

Sp

SUNSPOTS

BIG BEAR

Np

BOULDER PROMINENCES

1715 UT

Sp

ACTIVE REGIONS

Np

NO DATA

E

W

Sp

STANFORD

Np

NO DATA

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

•

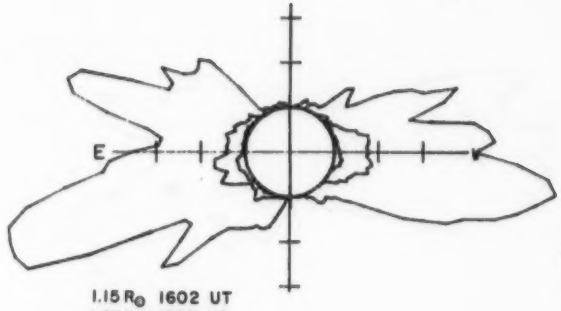
•

•

Sp

JANUARY 29, 1982 (P=-10.83, B_o=-5.80, L_o= 8.19)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1602 UT
1.35 $R_\odot$ 1535 UT
1.55 $R_\odot$ 1551 UT

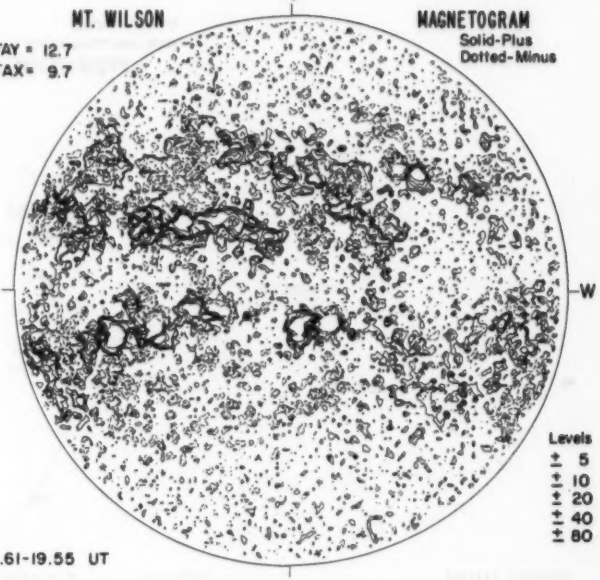
Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX= 9.7



18.61-19.55 UT

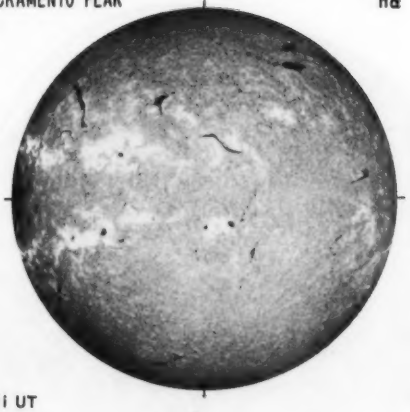
Sp

Sp

Sp

29

SACRAMENTO PEAK Np Hα

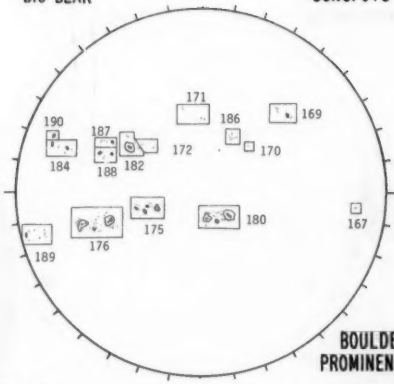


E W

1511 UT

Sp

BIG BEAR Np SUNSPOTS



E W

1925 UT

Sp

BIG BEAR Np ACTIVE REGIONS

NO DATA

E W

BOULDER PROMINENCES

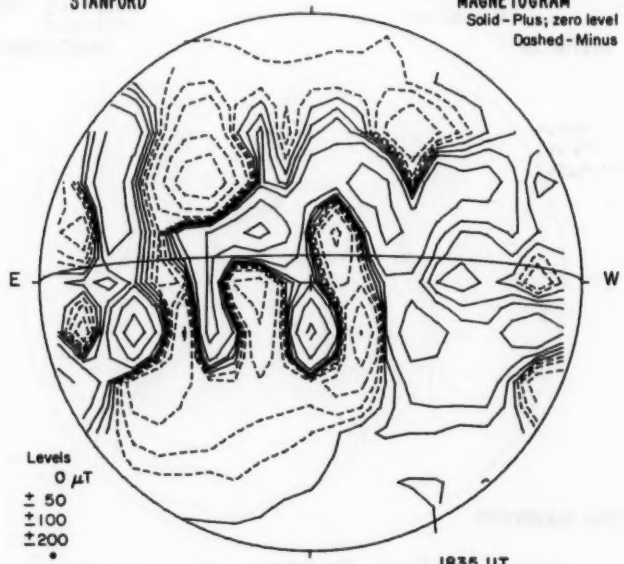
NO DATA

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1835 UT

Sp

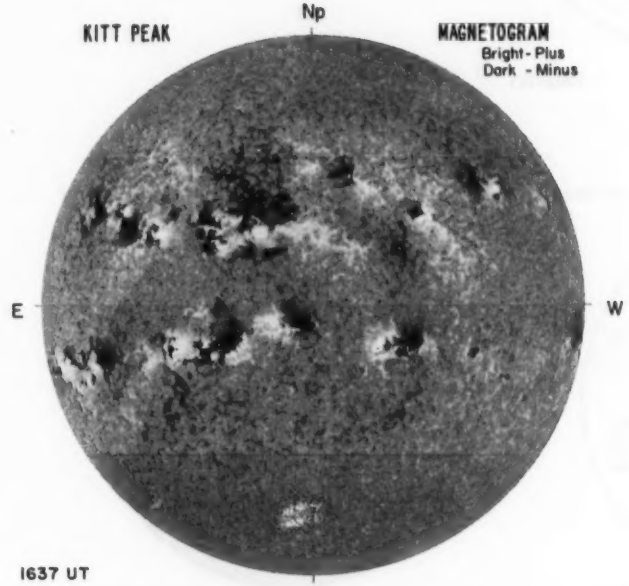
JANUARY 30, 1982 (P=-11.25, B_o=-5.88, L_o=355.03)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

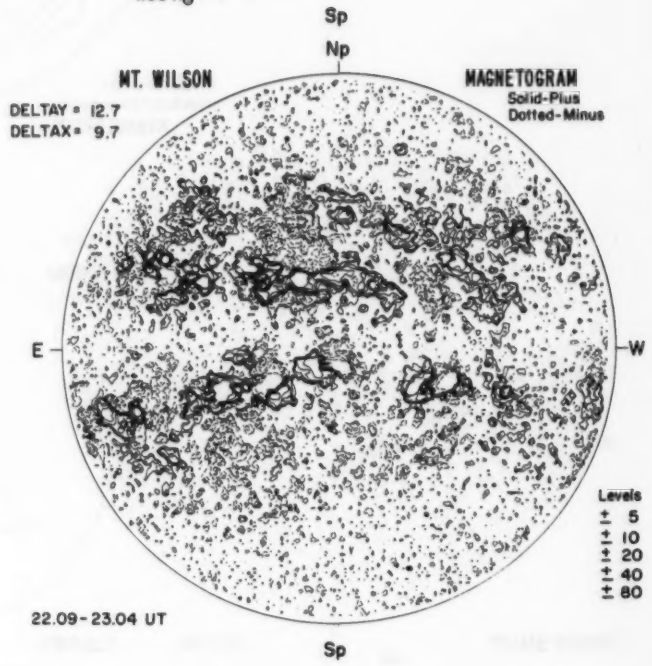
KITT PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

1637 UT

MT. WILSON



DELTAY = 12.7
DELTAX = 9.7

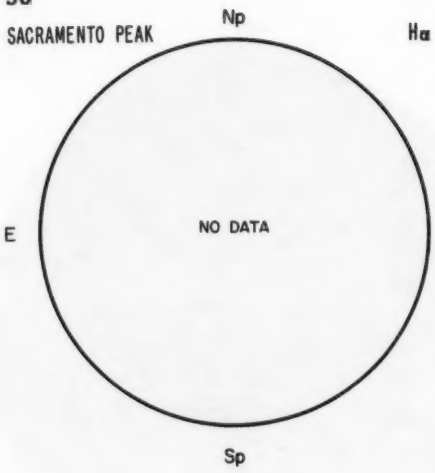
MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

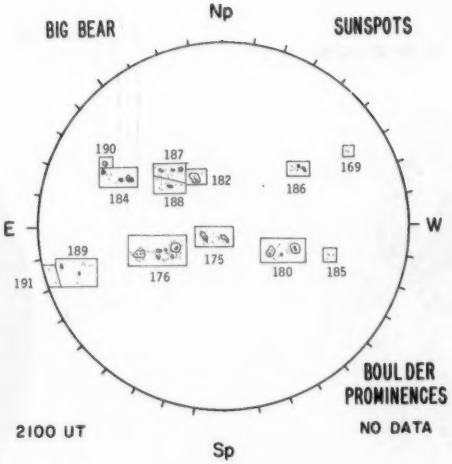
22.09-23.04 UT

30

SACRAMENTO PEAK



BIG BEAR SUNSPOTS

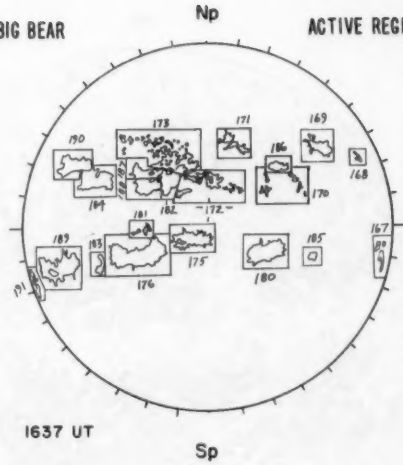


2100 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS

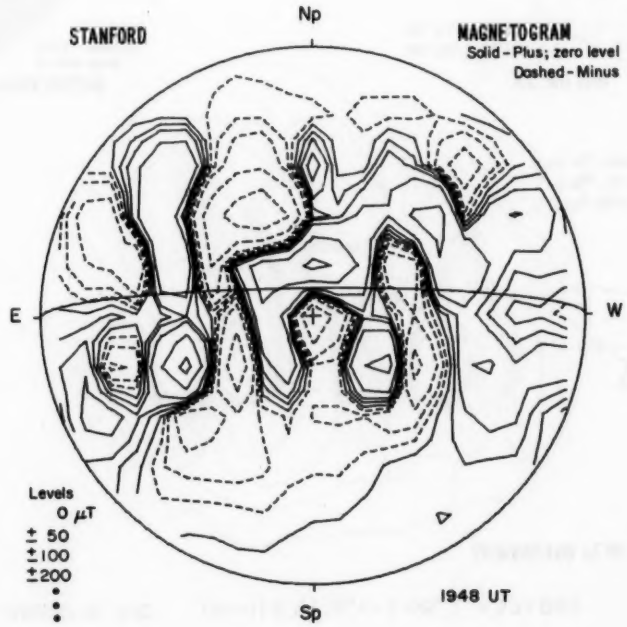


1637 UT

GOOD	WM
69- 1500-3.5	
71- 0800-2.5	
72- 1700-3.0	
73- 0300-2.5	
75- 2000-3.0	
76- 4800-3.5	
80- 2500-3.5	
82- 1400-2.5	
84- 2700-3.0	
86- 0600-3.0	
87- 0800-3.5	
88- 0800-3.5	
89- 3800-2.5	
90- 3000-3.5	

STANFORD MAGNETOGRAM

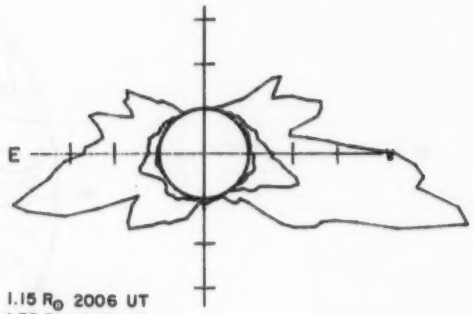
Solid - Plus; zero level
Dashed - Minus



1948 UT

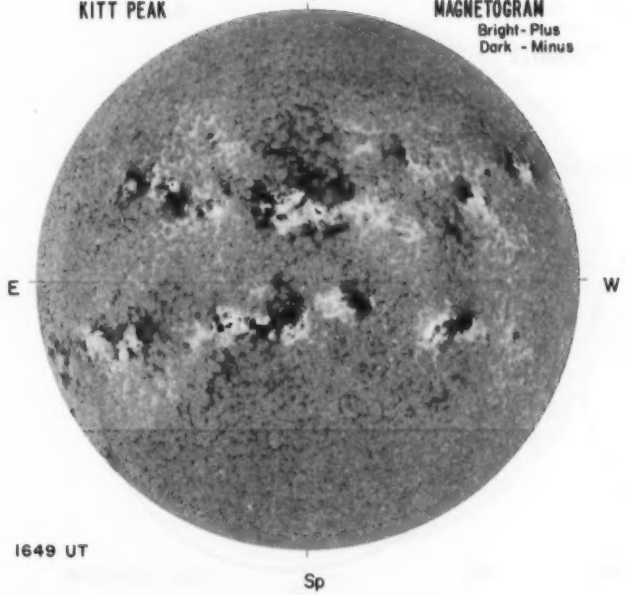
JANUARY 31, 1982 (P=-11.67, B_o=-5.95, L_o=341.86)

SACRAMENTO PEAK Np CORONA
5303 Å



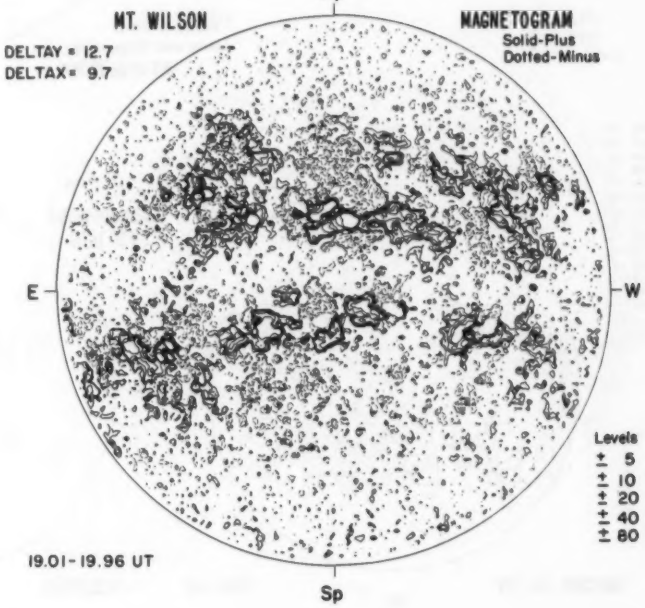
1.15 $R_\odot$ 2006 UT
1.35 $R_\odot$ 1946 UT
1.55 $R_\odot$ 1955 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

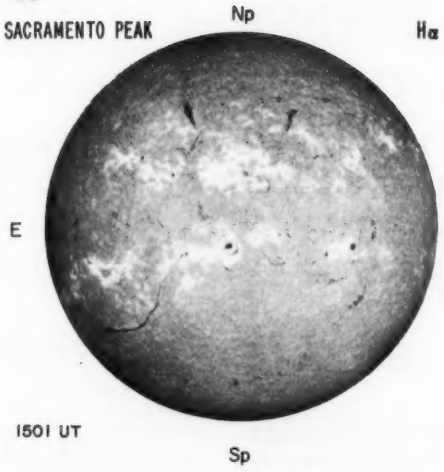


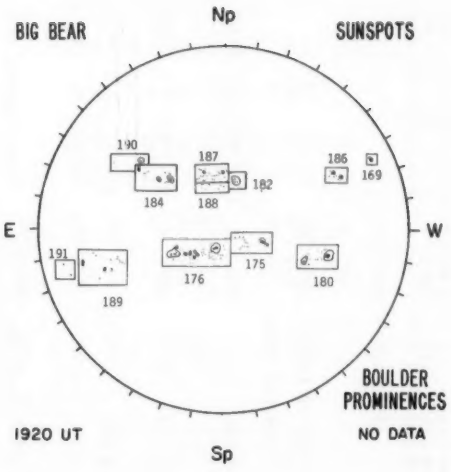
1649 UT

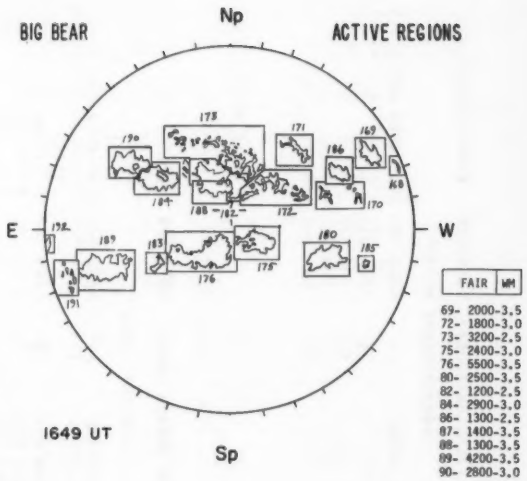
Sp Np MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.7
DELTAX = 9.7

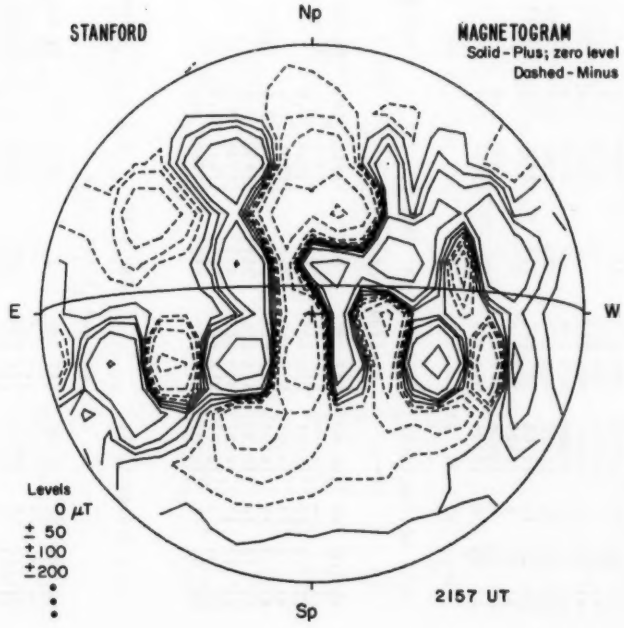


19.01 - 19.96 UT


SACRAMENTO PEAK
Np
Hα
E
W
1501 UT
Sp


BIG BEAR
Np
SUNSPOTS
190
187
184
188
182
186
169
191
189
176
175
180
E
W
BOULDER
PROMINENCES
NO DATA
1920 UT
Sp


BIG BEAR
Np
ACTIVE REGIONS
E
W
FAIR | MH
69- 2000-3.5
72- 1800-3.0
73- 3200-2.5
75- 2400-3.0
76- 5500-3.5
80- 2500-3.5
82- 1200-2.5
84- 2900-3.0
86- 1300-2.5
87- 1400-3.5
88- 1300-3.5
89- 4200-3.5
90- 2800-3.0
1649 UT
Sp


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
2157 UT
Sp

REGIONS OF SOLAR ACTIVITY

JANUARY 1982

HALE REGION 18104 CMP DATE 1.2 RETURN OF REGION 18049 ROTATION 4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	26	18104	S23	E74	12	500	2.5										
81	12	27	18104	S22	E60	12	500	2.0										
81	12	28	18104	S23	E47	13	600	2.0										
81	12	29	18104	S23	E35	12	500	2.0										
81	12	30	18104	S23	E22	12	500	2.0										
81	12	31	18104	S23	E07	13	300	1.5										
82	01	3	18104	S23	W33	14	200	1.5										
82	01	4	18104	S23	W46	14	300	1.0										

HALE REGION 18106 CMP DATE 2.1 RETURN OF REGION 18052 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	27	18106	N04	E75	357	2500	2.0										
81	12	28	18106	N04	E60	0	3300	2.5	22889	N05	E59	2	(B)	4	H	60	3	DRO
81	12	29	18106	N05	E46	1	3300	2.5	22889	N05	E45	2	(B)	4	H	10	3	BXO
81	12	30	18106	N05	E34	0	2500	2.5		N04	E32				R	10	2	BXO
81	12	31	18106	N05	E21	359	2300	2.5	22889	N06	E18	3	(B)	3	H	10	2	BXO
81	12	31	18106	N05	E21	359	2300	2.5	22899	N08	E26	355	(AF)	3	P	10	3	BXO
82	01	1	18106							N07	E09				R	10	1	AXX
82	01	3	18106	N05	W21	2	1500	2.0										
82	01	4	18106	N06	W34	2	1800	2.0										

HALE REGION 18107 CMP DATE 2.4 RETURN OF REGION 18051 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	27	18107	N20	E80	352	1500	3.5										
81	12	28	18107	N18	E62	358	2500	2.5										
81	12	29	18107	N19	E48	359	2300	2.5	22894	N22	E52	355	(AF)	3	H	270	4	DAO
81	12	30	18107	N18	E35	359	2800	2.0										
81	12	31	18107	N18	E22	358	2300	2.0										
82	01	3	18107	N18	W17	358	1400	3.5		N19	W23				H		1	AXX
82	01	4	18107	N19	W30	358	1100	3.5										

HALE REGION 18111 CMP DATE 3.3 RETURN OF REGION 18075 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	28	18111	N23	E70	350	3000	3.0	22890	N25	E70	351	(B)	4	H	190	8	DAI
81	12	29	18111	N25	E60	347	3700	3.0	22890	N25	E60	347	(B)	3	H	270	4	DAO
81	12	30	18111	N24	E47	347	4000	3.0		N24	E45				R	200	8	DKO
81	12	31	18111	N24	E35	345	3500	3.0	22890	N25	E34	347	(B)	4	H	200	8	DSO
82	01	1	18111							N29	E22				B	140	9	DAI
82	01	2	18111						22890	N25	E07	347	B	4	R	140	16	DKO
82	01	3	18111	N24	W05	346	3500	3.5	22890	N26	W07	348	(B)	4	H	130	28	EAO
82	01	4	18111	N24	W17	345	3500	3.5		N25	W18				H	60	10	ESO
82	01	5	18111							N26	W30				R	50	8	CSO
82	01	6	18111						22890	N25	W45	346	B	3	L	60	12	DRO
82	01	8	18111	N24	W70	345	2700	3.0										

REGIONS OF SOLAR ACTIVITY

JANUARY 1982

HALE REGION 18110 CMP DATE 3.8 RETURN OF LEADING PARTS OF REGION 18054 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	28	18110	S19 E73	347	300	1.0									
81	12	29	18110	S18 E65	342	200	1.0									
81	12	30	18110	S18 E53	341	100	1.0									
81	12	31	18110	S18 E40	340	200	1.0									

HALE REGION 18124 CMP DATE 4.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	1	18124						N21 E33				R	20	3	BXO
82	01	2	18124					22902	N21 E20	334	B	4	R	50	9	CAO
82	01	3	18124	N20 E08	333	900	2.5	22902	N21 E05	336	(B)	3	H	40	17	BXO
82	01	4	18124	N20 W06	334	700	2.0		N22 W05				H	10	3	BXO
82	01	5	18124						N21 W13				L	10	3	BXO
82	01	8	18124	N21 W56	331	400	2.0									
82	01	9	18124					22914	N23 W65	327	(AF)	3	P	10	1	AXX

HALE REGION 18113 CMP DATE 4.4 RETURN OF REGION 18058 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	29	18113	N08 E77	330	2300	2.5									
81	12	30	18113	N08 E64	330	2300	2.0		N11 E72				H	30	1	AXX
81	12	31	18113	N09 E50	330	2000	2.5	22900	N11 E57	324	(BY)	4	H	30	6	BXO
82	01	1	18113						N13 E46				B	30	1	AXX
82	01	2	18113					22903	N10 E23	331	B	3	R	30	2	CAO
82	01	2	18113					22900	N10 E33	321	AP	3	R	30	2	CAO
82	01	3	18113	N09 E11	330	2000	2.5	22903	N10 E08	333	(BY)	4	H	140	25	EAO
82	01	4	18113	N09 W04	332	2000	2.5		N11 W04				H	110	25	DSI
82	01	5	18113						N10 W16				R	160	30	ESO
82	01	6	18113					22903	N09 W31	332	B	5	L	270	27	EAI
82	01	7	18113					22903	N09 W44	333	(B)	3	H	350	51	EAI
82	01	8	18113	N08 W57	332	5000	3.5	22903	N09 W59	334	(B)	3	R	630	50	EKO
82	01	9	18113					22903	N09 W70	332	(B)	3	B	460	10	FRO
82	01	10	18113	N08 W83	332	2000	3.5		N07 W82				H	10	2	BXO

HALE REGION 18112 CMP DATE 4.9 RETURN OF REGION 18055 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	29	18112	N19 E80	327	1500	1.5	22896	N17 E80	327	X	1	H		1	AXX
81	12	30	18112	N18 E65	329	2500	2.0									
81	12	31	18112	N19 E54	326	2800	2.0		N17 E61				L		1	AXX
82	01	1	18112						N21 E33				R	20	3	BXO
82	01	3	18112	N21 E16	325	2700	2.5		N18 E13				H		1	AXX
82	01	4	18112	N22 E03	325	2800	2.0		N22 E01				R	10	2	BXO
82	01	6	18112					22910	N28 W14	315	B	3				
82	01	8	18112	N23 W48	323	2400	2.5									
82	01	10	18112	N20 W74	323	1000	2.0		N21 W73				R	60	1	HSX

HALE REGION 18116 CMP DATE 5.8 RETURN OF REGION 18064 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	30	18116	N11 E80	314	200	2.5		N11 E72				H	30	1	AXX
81	12	31	18116	N10 E67	313	900	2.5		N10 E60				B	10	2	AXX
82	01	1	18116						N13 E46				B	30	1	AXX
82	01	2	18116					22904	N11 E39	315	X	2	R	30	2	CAO
82	01	3	18116	N11 E27	314	800	2.0	22904	N10 E23	318	(B)	3	H	20	4	CRO

CONT

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HALE REGION 18116 (CONT) CMP DATE 5.8 RETURN OF REGION 18064 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	4	18116	N11 E14	314	600	1.5			N12 E07				H	10	3	BXO

HALE REGION 18115 CMP DATE 5.9 RETURN OF PARTS OF 18054 AND 18059 ROTATIONS 4 AND 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	30	18115	S20 E70	324	1000	1.0										
81	12	31	18115	S22 E59	321	600	1.0										
82	01	3	18115	S22 E20	321	700	1.5										
82	01	4	18115	S22 E10	318	700	1.5										
82	01	8	18115	S22 W42	317	500	1.0										

HALE REGION 18126 CMP DATE 5.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	4	18126	N13 E10	318	100	1.5			N12 E07				H	10	3	BXO

HALE REGION 18117 CMP DATE 6.4 RETURN OF REGION 18060 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	12	31	18117	S15 E76	304	300	2.5		22901	S15 E76	305	(AP)	2	H	20	1	HSX
82	01	1	18117							S11 E58				B	20	1	AXX
82	01	2	18117						22901	S15 E48	306	AP	3	R	30	2	CAO
82	01	3	18117	S15 E36	305	300	2.0		22901	S15 E34	307	(AP)	3	H		1	AXX
82	01	4	18117	S14 E23	305	500	2.0			S15 E22				H	10	3	BXO
82	01	5	18117							S16 E11				R	20	3	BXO
82	01	6	18117						22901	S16 W07	308	AP	2				
82	01	8	18117	S15 W30	305	300	2.0			S19 W23				R	50	10	DAO
82	01	10	18117	S17 W60	309	100	1.0										

HALE REGION 18125 CMP DATE 6.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	1	18125							N21 E33				R	20	3	BXO
82	01	3	18125	N19 E14	327	200	2.0			N18 E13				H		1	AXX

HALE REGION 18121 CMP DATE 7.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	1	18121							S15 E71				M	60	1	HRX
82	01	2	18121						22905	S16 E60	294	AP	3	R	10	2	BXO
82	01	3	18121	S17 E48	293	1600	2.5		22905	S17 E45	296	(B)	3	H	10	3	BXO
82	01	4	18121	S17 E36	292	1600	2.5			S16 E33				H	30	6	CRO
82	01	5	18121							S17 E21				R	40	4	DSO
82	01	6	18121						22905	S18 E07	294	B	4	L	40	12	CSO
82	01	7	18121						22905	S17 W08	297	(B)	3	H	20	2	BXO
82	01	8	18121	S18 W19	294	1900	2.5		22905	S18 W23	298	(B)	3	R	50	10	DAO
82	01	9	18121						22905	S17 W37	299	(AP)	3	B	10	2	BXO
82	01	10	18121	S18 W45	294	1700	3.0			S17 W38				H	190	18	DSI
82	01	11	18121						22919	S20 W57	292	(B)	3	R	270	15	DAO

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HALE REGION 18119 CMP DATE 7.4 RETURN OF REGION 18066 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	1	18119							N08	E76				P		1	AXX
82	01	3	18119	N10	E48	293	2000	2.5	22908	N07	E45	296	X	2				
82	01	4	18119	N10	E36	292	1900	2.5										
82	01	7	18119						22913	N10	E01	288	(B)	2	H	20	9	CRO
82	01	8	18119	N09	W17	292	1500	2.5	22913	N09	W12	287	(B)	3	R	10	7	BXO
82	01	10	18119	N08	W43	292	1200	2.0										

HALE REGION 18120 CMP DATE 7.4 RETURN OF REGION 18074 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	1	18120							S13	E63				R	20	4	BXO
82	01	3	18120	S09	E47	294	900	2.0		S14	E44				L		1	AXX
82	01	4	18120	S09	E34	294	700	1.5										
82	01	8	18120	S10	W17	292	500	2.0										
82	01	10	18120	S11	W43	292	500	2.0										

HALE REGION 18118 CMP DATE 7.7 RETURN OF REGION 18067 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	3	18118	N18	E53	288	800	1.5										
82	01	4	18118	N18	E40	288	600	1.5										
82	01	6	18118						22912	N16	E18	283	X	2				
82	01	8	18118	N18	W13	288	600	1.5	22912	N15	W09	284	(AP)	2	M		4	BXO
82	01	10	18118	N17	W39	288	500	1.5										

HALE REGION 18128 CMP DATE 7.9

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	6	18128						22911	S17	E17	284	B	3	L	40	12	CSO
82	01	7	18128						22911	S16	E04	285	(B)	3	H	30	11	CRO
82	01	8	18128	S17	W10	285	900	3.0	22911	S17	W10	285	(B)	4	R	40	16	DAO
82	01	9	18128						22911	S17	W24	286	(BY)	4	B	50	12	CAO
82	01	10	18128	S17	W37	286	2000	3.5		S17	W38				H	190	18	DSI
82	01	11	18128						22911	S17	W50	285	(BY)	5	R	270	15	DAO
82	01	12	18128						22911	S17	W64	287	(B)	4	R	290	11	EAO
82	01	13	18128	S17	W77	286	3000	3.5	22911	S17	W77	286	(B)	3	H	200	8	EAO
82	01	14	18128						22911	S17	W87	283	AF	2	R	30	3	BXO

HALE REGION 18122 CMP DATE 9.1

CALCIUM PLAGE DATA									SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	2	18122						22907	S35	E78	276	AP	2	R	90	2	CAO
82	01	3	18122	S37	E70	271	2000	2.5	22907	S36	E64	277	(AP)	3	H	60	1	HSX
82	01	4	18122	S37	E58	270	2400	2.5		S35	E52				H	30	1	HSX
82	01	5	18122							S36	E40				R	30	1	HSX
82	01	6	18122						22907	S36	E27	274	BP	4	L	60	2	GSO
82	01	7	18122						22907	S36	E14	275	(AP)	3	H	50	7	CAO
82	01	8	18122	S37	E05	270	2500	3.0	22907	S36	E01	274	(AP)	4	R	20	3	CAO
82	01	9	18122						22907	S36	W12	274	(AP)	4	B	30	1	AXX
82	01	10	18122	S37	W20	269	1800	2.5		S36	W25				H	20	1	HSX
82	01	11	18122						22907	S36	W36	271	(AP)	4	R	40	1	HSX
82	01	12	18122						22907	S36	W50	273	(AP)	3	B	20	1	AXX
82	01	13	18122	S36	W60	269	1200	2.5	22907	S36	W60	269	(AP)	2	H		1	AXX
82	01	14	18122	S36	W73	269	800	2.0		S36	W66				L		1	AXX
82	01	15	18122	S36	W83	266	500	2.0										

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HALE REGION 18123 CMP DATE 9.4 RETURN OF REGION 18069 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	2	18123					22906	S15 E82	272	AP	3	R	190	1	HKX
82	01	3	18123	S18 E69	272	900	2.5	22906	S16 E67	274	(AP)	4	H	250	1	HHX
82	01	4	18123	S17 E59	269	2000	2.5		S16 E55				H	270	1	HHX
82	01	5	18123						S16 E43				R	250	1	HHX
82	01	6	18123					22906	S17 E29	272	BP	5	L	200	1	HSX
82	01	7	18123					22906	S16 E17	272	(AP)	4	H	250	1	HHX
82	01	8	18123	S19 E10	265	1800	2.5	22906	S17 E03	272	(AP)	5	R	210	1	HKX
82	01	9	18123					22906	S16 W10	272	(AP)	6	B	200	1	HSX
82	01	9	18123					22915	S21 E06	256	(B)	3	B	30	3	BXO
82	01	10	18123	S20 W15	265	1500	2.5		S16 W24				H	190	1	HHX
82	01	11	18123					22906	S16 W35	270	(AP)	5	R	150	2	CHO
82	01	12	18123					22906	S16 W48	271	(AP)	5	R	190	1	HHX
82	01	13	18123	S19 W55	264	1100	2.0	22906	S16 W60	269	(AP)	4	H	410	1	HSX
82	01	14	18123	S20 W69	265	900	2.0	22906	S16 W75	271	(AP)	4	B	180	1	HSX
82	01	15	18123	S23 W82	265	500	2.0	22906	S16 W89	272	AP	1	R	130	1	HKX

HALE REGION 18127 CMP DATE 9.9 RETURN OF REGION 18070 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	3	18127					22909	S05 E78	263	X	1				
82	01	4	18127	S05 E68	260	300	2.5		S05 E67				H	10	1	AXX
82	01	5	18127						S06 E56				R	40	1	HSX
82	01	6	18127					22909	S05 E40	261	X	3	M	20	1	HRX
82	01	8	18127	S07 E17	258	500	2.0		S07 E25				L		2	AXX
82	01	10	18127	S07 W10	259	500	1.5									
82	01	13	18127	S07 W50	259	300	1.5									
82	01	14	18127	S07 W64	260	100	1.0									

HALE REGION 18129 CMP DATE 11.0 RETURN OF LEADING POLARITY OF 18073 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	8	18129	S07 E30	245	200	1.0		S07 E25				L		2	AXX
82	01	10	18129	S07 E04	245	200	1.0									
82	01	13	18129	S07 W35	244	300	1.0									
82	01	14	18129	S07 W49	245	200	1.0									
82	01	15	18129	S07 W63	246	400	1.5									

HALE REGION 18130 CMP DATE 12.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	8	18130	S17 E50	225	600	2.5		S16 E57				L	10	5	BXO
82	01	10	18130	S17 E24	225	1000	2.5		S17 E22				H	10	2	AXX
82	01	13	18130	S17 W15	224	700	1.5									
82	01	14	18130	S17 W28	224	400	1.5									
82	01	15	18130	S17 W42	225	300	1.0									

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HALE REGION 18131 CMP DATE 12.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	8	18131	S09 E51	224	100	1.5			S07 E53				R	10	1	AXX
82	01	10	18131	S10 E25	224	100	2.5			S09 E24				H		1	AXX
82	01	13	18131	S11 W14	223	100	1.0										
82	01	14	18131	S12 W27	223	100	1.0										

HALE REGION 18133 CMP DATE 12.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	9	18133						22918	S08 E38	224	(AF)	3	B	10	1	AXX
82	01	10	18133	S08 E25	224	100	2.0			S09 E24				H		1	AXX
82	01	13	18133	S08 W14	223	100	1.5										
82	01	14	18133	S08 W27	223	100	1.5										
82	01	15	18133	S08 W40	223	100	1.0										

HALE REGION 18132 CMP DATE 12.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	8	18132	S25 E57	218	100	2.5										
82	01	10	18132	S26 E30	219	200	2.0										

HALE REGION 18141 CMP DATE 13.0 RETURN OF REGION 18076 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	15	18141	N14 W35	218	200	2.0										

HALE REGION 18153 CMP DATE 14.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18153	S12 W44	201	100	2.0		22930	S12 W43	200	(AP)	2	H	60	14	BXI

HALE REGION 18142 CMP DATE 15.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	15	18142	S09 W09	192	100	2.0		22924	S08 W08	191	(B)	3	H		1	AXX
82	01	16	18142	S09 W23	193	500	3.0		22924	S09 W20	190	(B)	4	H	10	4	BXO
82	01	17	18142	S09 W36	193	700	4.0		22924	S08 W34	191	(BY)	4	H	60	14	BXI
82	01	18	18142	S09 W50	193	1200	4.0		22924	S08 W49	192	(B)	4	H	160	18	DSI
82	01	19	18142							S06 W61				B	450	19	EAI
82	01	20	18142	S10 W76	193	2600	3.5			S08 W78				H	120	7	EAI
82	01	21	18142							S09 W85				H	30	1	HSX

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HALE REGION 18134 CMP DATE 15.1

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	10	18134	N03 E59	190	100	1.5									

HALE REGION 18154 CMP DATE 15.2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18154	S15 W33	190	100	1.5		S20 W29				H	10	2	BXO

HALE REGION 18144 CMP DATE 15.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	13	18144	S17 E24	185	300	2.0									
82	01	14	18144	S17 E10	186	100	1.5									

HALE REGION 18155 CMP DATE 15.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18155	S19 W30	187	200	2.0	22931	S19 W30	187	(B)	4	H	10	2	BXO
82	01	18	18155	S20 W43	186	100	2.0	22931	S19 W45	188	(AP)	3	R	10	1	AXX

HALE REGION 18136 CMP DATE 16.0

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	13	18136	N02 E32	177	200	2.5		N02 E28				M	10	2	BXO
82	01	14	18136	N03 E18	178	700	3.5	22921	N03 E17	179	(B)	4	B	40	7	CAI
82	01	15	18136	N03 E04	179	1400	3.5	22921	N03 E03	180	(BY)	5	H	160	17	DAO
82	01	16	18136	N03 W10	180	1500	3.5	22921	N02 W10	180	(B)	5	H	290	17	DAI
82	01	17	18136	N03 W24	181	1500	3.5	22921	N02 W23	180	(B)	5	H	310	10	DHI
82	01	18	18136	N03 W37	180	1800	3.0	22921	N02 W37	180	(B)	5	H	270	6	DAO
82	01	19	18136						N05 W49				B	350	9	DAO
82	01	20	18136	N03 W64	181	2300	3.5		N04 W65				H	150	6	DAO
82	01	21	18136						N03 W78				H	50	5	DAO

HALE REGION 18143 CMP DATE 16.0

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	15	18143	S15 E04	179	100	1.0									
82	01	16	18143	S15 W10	180	500	2.5	22926	S15 W09	179	(B)	3	H	20	3	CSO
82	01	17	18143	S15 W24	181	400	2.5	22926	S15 W25	182	(B)	4	H	20	5	BXO
82	01	18	18143	S15 W37	180	400	2.0	22926	S15 W40	183	(AP)	2	R	10	4	BXO
82	01	19	18143						S14 W54				B	20	3	BXO
82	01	20	18143	S15 W64	181	500	2.0									

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HALE REGION 18135 CMP DATE 16.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	10	18135	S25 E78	171	200	2.5									

HALE REGION 18137 CMP DATE 16.9 NEW, IN LOCATION OF REGION 18079

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	11	18137					22920	S07 E68	167	(AP)	3	P	20	4	BXO
82	01	12	18137					22920	S07 E58	165	(B)	4	B	50	8	BXO
82	01	13	18137	S07 E44	165	2800	3.5	22920	S08 E43	166	(B)	4	H	220	32	DAI
82	01	14	18137	S09 E31	165	3200	3.5	22920	S09 E30	166	(BY)	4	B	190	13	DAI
82	01	15	18137	S10 E16	167	3500	3.5	22920	S10 E17	166	(BY)	4	H	190	32	DAO
82	01	16	18137	S10 E03	167	3500	3.5	22920	S10 E03	167	(BY)	5	H	240	19	DSO
82	01	17	18137	S10 W11	168	3700	3.5	22920	S11 W12	169	(BY)	5	H	270	27	EKI
82	01	18	18137	S10 W24	167	4000	3.5	22920	S11 W26	169	(B)	4	H	130	18	DAI
82	01	19	18137						S09 W38				B	250	20	DAI
82	01	20	18137	S10 W52	169	3500	3.5		S11 W53				H	260	17	EAI
82	01	21	18137						S11 W63				H	260	16	EAO
82	01	22	18137	S10 W80	168	2200	3.5		S12 W79				H	140	4	ESO
82	01	23	18137						S12 W88				R	190	1	HAX

HALE REGION 18159 CMP DATE 16.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	18	18159	N04 W24	167	300	1.0		N02 W27				M	250	6	DSO
82	01	19	18159						N07 W39				B	20	3	BXO
82	01	20	18159	N04 W51	168	800	3.0		N05 W54				H	30	4	DSO
82	01	21	18159						N04 W66				H	40	9	DSO
82	01	22	18159	N04 W80	168	1200	3.5		N05 W79				H	10	2	BXO

HALE REGION 18149 CMP DATE 17.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	16	18149	N02 E05	165	100	1.0									

HALE REGION 18158 CMP DATE 17.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18158	S14 E01	156	600	3.5	22932	S15 W00	157	(B)	4	H	270	27	EKI
82	01	18	18158	S15 W15	158	2000	3.5	22932	S15 W13	156	(B)	5	H	190	17	DSI
82	01	19	18158						S13 W26				B	360	10	DAO
82	01	20	18158	S15 W42	159	2800	3.5		S15 W40				H	50	6	CSO
82	01	21	18158						S11 W63				H	260	16	EAO
82	01	22	18158	S15 W70	158	2700	2.5		S12 W79				H	140	4	ESO
82	01	23	18158						S12 W88				R	190	1	HAX

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HALE REGION 18145 CMP DATE 17.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	15	18145	S21 E29	154	100	2.0									
82	01	16	18145	S21 E15	155	100	1.5									

HALE REGION 18138 CMP DATE 18.0

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	14	18138	S09 E45	151	200	2.0	22922	S09 E45	151	(AP)	3	R	30	2	CAO
82	01	15	18138	S10 E32	151	300	3.0	22922	S09 E33	150	(B)	3	H	30	5	CAO
82	01	16	18138	S11 E18	152	300	2.0		S10 E12				L	370	35	DKI
82	01	17	18138	S11 E05	152	300	2.5	22933	S10 E05	152	(B)	4	H	10	2	BXO
82	01	18	18138	S11 W10	153	400	3.0	22933	S10 W09	152	(B)	3	H	10	5	BXO
82	01	19	18138						S08 W22				B	10	1	AXX
82	01	20	18138	S10 W35	152	200	2.0		S15 W40				H	50	6	CSO
82	01	21	18138						S14 W58				R	200	3	CKO

HALE REGION 18150 CMP DATE 18.0

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	16	18150	S24 E18	152	200	1.5									
82	01	17	18150	S24 E05	152	100	1.0									
82	01	18	18150	S24 W10	153	200	1.0	22935	S22 W10	153	(AP)	2				
82	01	20	18150	S23 W37	154	100	1.0									

HALE REGION 18139 CMP DATE 18.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	14	18139	S15 E54	142	100	2.0									
82	01	15	18139	S16 E40	143	100	3.0									
82	01	16	18139	S17 E27	143	300	2.0									
82	01	17	18139	S17 E14	143	100	1.5									
82	01	18	18139	S17 E02	141	100	1.0									
82	01	20	18139	S17 W24	141	200	1.0									

HALE REGION 18162 CMP DATE 19.4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	19	18162						N31 W02				B	10	2	CRO
82	01	20	18162	N29 W17	134	700	3.0		N31 W19				H	60	6	DSO
82	01	21	18162						N30 W31				H	30	2	CSO
82	01	22	18162	N30 W44	132	700	2.5		N27 W49				H		1	AXX
82	01	24	18162	N30 W68	132	400	2.5		N31 W68				R	30	3	BXO
82	01	25	18162	N30 W80	131	300	2.0									

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HALE REGION 18140 CMP DATE 20.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	14	18140	S27 E68	128	400	2.0										
82	01	15	18140	S27 E56	127	500	2.5										
82	01	16	18140	S27 E43	127	400	2.0										
82	01	17	18140	S27 E30	127	400	2.0										
82	01	18	18140	S27 E19	124	300	1.5										

HALE REGION 18146 CMP DATE 20.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	15	18146	N05 E63	120	100	1.5		22925	N06 E62	121	(AP)	2	H	60	1	HSX
82	01	16	18146	N05 E49	121	200	3.0		22925	N05 E49	121	(B)	4	H	10	3	BXO
82	01	17	18146	N05 E35	122	300	2.5		22925	N06 E35	122	(B)	4	H	70	8	DRO
82	01	18	18146	N05 E20	123	200	3.0		22925	N07 E22	121	(B)	4	H	40	5	CAO
82	01	19	18146							N08 E08				B	50	4	CSI
82	01	20	18146	N05 W06	123	300	2.5			N08 W08				H	20	1	HSX
82	01	22	18146	N07 W34	122	200	1.5										

HALE REGION 18165 CMP DATE 20.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	21	18165							N12 W16				H	10	5	BXO
82	01	22	18165	N13 W33	121	700	1.5			N12 W32				H	60	6	CSO
82	01	23	18165							N13 W43				H	40	4	CAO
82	01	24	18165	N13 W57	121	700	2.0		22939	N06 W53	114	(AP)	4	H	20	1	HAX
82	01	25	18165	N13 W70	121	500	2.0		22939	N09 W62	113	(AP)	4	H	10	1	HRX

HALE REGION 18156 CMP DATE 20.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18156	N01 E40	117	100	1.0										

HALE REGION 18177 CMP DATE 20.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	26	18177	S13 W78	116	100	2.0										

HALE REGION 18147 CMP DATE 21.5 RETURN OF REGION 18086 ROTATION 5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	14	18147						22923	N11 E82	114	AP	2	M	100	1	HSX
82	01	15	18147	N13 E72	111	700	1.0		22923	N11 E69	114	(AP)	4	H	60	1	HSX
82	01	16	18147	N13 E59	111	700	1.0		22923	N10 E57	113	(AP)	4	H	60	1	HSX
82	01	17	18147	N13 E47	110	700	1.5		22923	N10 E43	114	(AP)	5	H	80	1	HSX
82	01	18	18147	N14 E34	109	1000	1.0		22923	N10 E30	113	(AP)	5	H	40	2	HSX
82	01	18	18147	N14 E34	109	1000	1.0		22936	N14 E27	116	(AF)	2	H	40	2	HSX
82	01	19	18147							N10 E16				B	50	1	HSX
82	01	20	18147	N14 E08	109	900	1.5			N10 E02				H	50	1	HSX
82	01	21	18147							N12 W14				R	20	4	CAO

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HALE REGION 18147 (CONT) CMP DATE 21.5 RETURN OF REGION 18086 ROTATION 5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	22	18147	N15 W18	106	700	1.5		N11 W21				R	30	1	HSX
82	01	23	18147						N13 W41				R	60	5	CSO
82	01	24	18147	N15 W45	109	500	1.0	22923	N09 W65	126	(B)	4	H	110	3	CAO
82	01	25	18147	N15 W56	107	500	1.0	22923	N12 W75	126	(BP)	4	H	70	4	CSO
82	01	26	18147	N15 W70	108	300	1.0		N10 W75				H		1	AXX

HALE REGION 18148 CMP DATE 21.6 RETURN OF REGION 18092 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	15	18148	S25 E80	103	600	2.5									
82	01	16	18148	S25 E66	104	600	2.5		S23 E69				H		1	AXX
82	01	17	18148	S25 E52	105	600	2.5									
82	01	18	18148	S25 E38	105	700	2.5									
82	01	19	18148						S21 E28				B	10	3	BXO
82	01	20	18148	S26 E13	104	800	2.5									
82	01	22	18148	S26 W16	104	500	2.0									
82	01	24	18148	S27 W40	104	300	2.0									
82	01	25	18148	S27 W52	103	300	1.5									
82	01	26	18148	S27 W65	103	300	1.5									
82	01	27	18148	S27 W78	103	300	1.0									

HALE REGION 18157 CMP DATE 21.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18157	S15 E54	103	400	2.0	22934	S15 E53	104	(B)	3	H	10	2	BXO
82	01	18	18157	S14 E40	103	300	1.5									

HALE REGION 18163 CMP DATE 22.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	19	18163						S06 E40				B	10	3	BXO
82	01	20	18163	S03 E25	92	500	3.0		S02 E22				H	60	11	DSI
82	01	21	18163						S02 E11				H	100	17	DSO
82	01	22	18163	S03 W06	94	600	2.5		N01 W07				H	90	14	DAO
82	01	23	18163						S01 W19				H	20	1	HSX
82	01	24	18163	S03 W30	94	400	2.0		S01 W34				R	10	1	AXX
82	01	25	18163	S03 W44	95	200	1.5									
82	01	26	18163	S03 W58	96	100	1.0									
82	01	27	18163	S03 W72	97	100	1.0									

HALE REGION 18151 CMP DATE 22.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	16	18151	N04 E80	90	1000	2.5	22929	N05 E80	90	B	2				
82	01	17	18151	N04 E66	91	2100	2.5	22929	N05 E67	90	(B)	3	H	10	3	BXO
82	01	18	18151	N04 E53	90	2400	3.0	22929	N03 E49	94	(AP)	3	H		1	AXX
82	01	19	18151						N04 E34				B	10	6	BXO
82	01	20	18151	N04 E26	91	2800	3.0		N04 E30				M	10	3	BXO
82	01	22	18151	N04 W04	92	3000	2.5		N05 W01				H	90	7	CRO
82	01	23	18151						N05 W15				H	30	7	CRO
82	01	24	18151	N04 W28	92	2700	2.5	22940	N01 W34	95	(B)	4	H	50	5	CSO
82	01	25	18151	N04 W42	93	2700	3.0	22940	N03 W45	96	(B)	4	H	110	14	DSI
82	01	26	18151	N04 W56	94	3700	3.5	22940	N03 W59	97	(B)	4	H	390	10	DAI
82	01	27	18151	N04 W70	95	3800	3.0	22940	N03 W73	98	(B)	4	H	320	6	DAO

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HALE REGION 18152 CMP DATE 22.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	16	18152	S10	E85	85	1000	2.5										
82	01	17	18152	S09	E69	88	1500	2.0										
82	01	18	18152	S09	E55	88	1000	2.5		S08	E49				R	230	20	DAO
82	01	19	18152							S06	E40				B	10	3	BXO
82	01	20	18152	S09	E26	91	1400	2.5		S07	E24				H	30	3	DSO
82	01	21	18152							S08	E12				H	40	11	DSO
82	01	22	18152	S09	W03	91	1000	2.5		S06	W04				H	10	3	BXO
82	01	23	18152							S06	W15				H	20	5	BXO
82	01	24	18152	S08	W30	94	900	2.5										
82	01	25	18152	S08	W44	95	400	2.0										
82	01	26	18152	S08	W56	94	400	2.0										
82	01	27	18152	S08	W69	94	500	1.5										

HALE REGION 18166 CMP DATE 22.9 RETURN OF REGION 18190 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	17	18166	N16	E70	87	800	2.0										
82	01	18	18166	N16	E54	89	1000	2.0	22937	N07	E58	85	(AF)	2	H		1	AXX
82	01	20	18166	N16	E29	88	1900	2.0										
82	01	22	18166	N17	E01	87	1300	2.0										
82	01	24	18166	N17	W23	87	1200	1.5										
82	01	25	18166	N16	W36	87	900	1.5										
82	01	26	18166	N16	W50	88	700	1.0										
82	01	27	18166	N16	W62	87	1000	1.0										

HALE REGION 18178 CMP DATE 23.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	26	18178	S09	W38	76	200	2.0	22949	S08	W39	77	(AP)	3	H	10	3	AXX
82	01	27	18178	S08	W52	77	200	1.5	22949	S07	W56	81	(AP)	3	H		1	AXX

HALE REGION 18160 CMP DATE 24.1 RETURN OF REGION 18093 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	18	18160	S10	E70	73	1400	1.5										
82	01	19	18160							S12	E55				M	20	5	BXO
82	01	20	18160	S12	E45	72	1800	2.0		S08	E35				M	40	7	BXO
82	01	22	18160	S12	E17	71	1700	2.0										
82	01	24	18160	S12	W07	71	1700	2.0		S08	W09				R	10	2	BXO
82	01	25	18160	S13	W21	72	1700	2.0		S09	W28				R	10	1	AXX
82	01	26	18160	S14	W35	73	1700	2.0										
82	01	27	18160	S14	W48	73	1700	2.0		S09	W46				L		1	AXX

HALE REGION 18161 CMP DATE 24.4 RETURN OF REGION 18091 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	18	18161	S23	E72	71	1000	2.5	22938	S25	E70	73	(AP)	3	H		1	AXX
82	01	19	18161							S23	E56				B	30	1	HRX
82	01	20	18161	S24	E47	70	1300	2.5		S24	E43				H		1	AXX
82	01	21	18161							S25	E32				H		1	AXX
82	01	22	18161	S24	E20	68	900	2.5		S25	E27				M	10	1	AXX
82	01	24	18161	S24	W04	68	900	2.0										
82	01	25	18161	S24	W16	67	1000	2.0										
82	01	26	18161	S24	W27	65	1300	2.0										

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HALE REGION 18161 (CONT) CMP DATE 24.4 RETURN OF REGION 18091 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	27	18161	S24 W42	67	1500	2.0									

HALE REGION 18164 CMP DATE 24.8

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	20	18164	N14 E55	62	300	2.0									
82	01	22	18164	N14 E26	62	200	2.0									

HALE REGION 18179 CMP DATE 25.2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	26	18179	S12 W19	57	200	2.0		S09 W16				H	70	13	CAO
82	01	27	18179	S12 W32	57	200	2.0		S09 W29				H	140	10	CAO

HALE REGION 18167 CMP DATE 25.6 NEW, IN LOCATION OF REGION 18102

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	21	18167						S08 E54				H	90	7	DAO
82	01	22	18167	S07 E38	50	1700	3.0		S07 E39				H	170	11	DSO
82	01	23	18167						S07 E28				H	140	11	DSO
82	01	24	18167	S07 E13	51	2000	2.5	22941	S06 E07	54	(AP)	4	H	110	9	CSO
82	01	24	18167	S07 E13	51	2000	2.5	22942	S07 E14	47	(BF)	4	H	110	9	CSO
82	01	25	18167	S07 W01	52	1800	2.5	22942	S08 E03	48	(B)	3	M	150	12	DSO
82	01	25	18167	S07 W01	52	1800	2.5	22946	S10 W05	56	(B)	3	H	90	14	CSO
82	01	25	18167	S07 W01	52	1800	2.5	22941	S07 W03	54	(AP)	4	H	90	14	CSO
82	01	26	18167	S07 W14	52	1500	3.0	22941	S07 W17	55	(AP)	4	H	70	13	CAO
82	01	27	18167	S08 W27	52	1700	2.5	22941	S07 W29	54	(AP)	4	H	140	10	CAO
82	01	29	18167					22941	S07 W57	55	(AP)	4				
82	01	30	18167	S11 W70	55	1600	1.5	22941	S07 W71	55	(AP)	3				

HALE REGION 18168 CMP DATE 26.4 RETURN OF REGION 18105 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	22	18168	N18 E47	41	300	2.0									
82	01	24	18168	N18 E23	41	200	1.5									
82	01	25	18168	N18 E10	41	200	1.5									
82	01	26	18168	N19 W04	42	200	1.5									
82	01	27	18168	N19 W18	43	200	1.5									
82	01	30	18168	N19 W58	43	200	1.0									
82	01	31	18168	N18 W71	43	200	1.0									

HALE REGION 18169 CMP DATE 27.8

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	24	18169	N20 E40	24	300	4.0	22943	N23 E34	27	(AP)	3	H	10	2	BXO
82	01	25	18169	N20 E27	24	700	3.5	22943	N21 E26	25	(B)	4	H	40	6	CSO
82	01	26	18169	N20 E14	24	700	3.5	22943	N21 E12	26	(B)	4	H	70	14	CAO
82	01	27	18169	N20 E01	24	800	3.0	22943	N20 W01	26	(B)	4	H	100	13	DAO
82	01	29	18169					22943	N21 W28	26	(B)	4				

CONT

REGIONS OF SOLAR ACTIVITY

JANUARY 1982

HALE REGION 18169 (CONT) CMP DATE 27.8

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	30	18169	N20 W39	24	1500	3.5	22943	N21 W41	25	(BP)	4				
82	01	31	18169	N20 W53	25	2000	3.5	22943	N25 W56	28	(B)	3				
82	02	1	18169	N22 W65	24	1900	2.5	22943	N20 W70	29	(AP)	3				
82	02	2	18169	N22 W78	23	1500	2.5									

HALE REGION 18185 CMP DATE 28.0

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	30	18185	S15 W35	20	400	1.5	22957	S14 W35	19	(B)	3				
82	01	31	18185	S15 W48	20	200	1.0									
82	02	1	18185	S15 W62	21	100	1.0									

HALE REGION 18170 CMP DATE 28.8 RETURN OF REGION 18106 ROTATION 3

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	24	18170	N07 E55	9	700	1.5									
82	01	25	18170	N07 E41	10	1500	1.5									
82	01	26	18170	N07 E28	10	1000	1.5		N11 E22				L	70	17	DAO
82	01	27	18170	N08 E16	9	1000	1.5									
82	01	30	18170	N08 W24	9	600	1.5									
82	01	31	18170	N08 W37	9	600	1.5									
82	02	1	18170	N08 W50	9	600	2.0									
82	02	2	18170	N08 W63	8	500	2.0		N12 W63				H	180	5	DSO

HALE REGION 18186 CMP DATE 28.9

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	29	18186					22954	N12 W11	9	(B)	4				
82	01	30	18186	N13 W23	8	600	3.0	22954	N13 W23	7	(D)	4				
82	01	31	18186	N13 W37	9	1300	2.5	22954	N13 W35	7	(B)	3				
82	02	1	18186	N14 W50	9	1500	2.5	22954	N13 W50	9	(B)	4				
82	02	2	18186	N14 W65	10	1700	2.5	22954	N12 W64	9	(B)	3	H	180	5	DSO
82	02	3	18186	N14 W78	10	1400	2.0	22954	N12 W78	10	(B)	3	H	60	3	CSO

HALE REGION 18180 CMP DATE 29.3

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	26	18180	S14 E33	5	200	4.0	22950	S12 E34	4	(B)	3	H	20	5	CSO
82	01	27	18180	S14 E21	4	800	3.5	22950	S14 E22	3	(B)	4	H	100	17	DAI
82	01	29	18180					22950	S13 W05	3	(D)	5				
82	01	30	18180	S14 W18	3	2500	3.5	22950	S13 W17	1	(B)	5				
82	01	31	18180	S14 W32	4	2500	3.5	22950	S13 W30	2	(B)	5				
82	02	1	18180	S14 W45	4	2500	3.5	22950	S14 W43	2	(B)	5				
82	02	2	18180	S14 W58	3	2700	3.5	22950	S15 W56	1	(B)	5	H	800	11	EHO
82	02	3	18180	S15 W72	4	2400	3.0	22950	S13 W70	2	(BP)	4	H	370	5	CHO
82	02	4	18180						S14 W83				H	140	1	HAX

REGIONS OF SOLAR ACTIVITY

JANUARY 1982

HALE REGION 18171 CMP DATE 30.1 NEW, IN LOCATION OF REGION 18111

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	24	18171	N20 E70	354	400	3.0	22944	N24 E65	356	(AP)	3	H		1	AXX
82	01	25	18171	N20 E57	354	800	3.0	22944	N21 E64	347	(B)	3	H	20	5	CAO
82	01	26	18171	N20 E43	355	700	3.0	22944	N21 E43	355	(B)	4	H	60	7	CSO
82	01	27	18171	N20 E30	355	900	3.0	22944	N19 E21	4	(B)	4	H	70	12	DAO
82	01	29	18171					22944	N20 E04	354	(B)	4				
82	01	30	18171	N20 W08	353	800	2.5	22944	N20 W09	353	(B)	4				
82	01	31	18171	N20 W22	354	700	2.0	22944	N18 W26	358	(AP)	3				
82	02	1	18171	N20 W34	353	800	2.5									
82	02	2	18171	N22 W47	352	500	2.5									
82	02	3	18171	N22 W61	353	300	2.5									

HALE REGION 18172 CMP DATE 30.8 RETURN OF REGION 18106 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	24	18172	N04 E77	347	500	2.5									
82	01	25	18172	N06 E67	344	700	2.5		N10 E64				H		1	AXX
82	01	26	18172	N07 E55	343	1500	2.5		N10 E50				H	10	1	AXX
82	01	27	18172	N07 E42	343	1700	2.5		N12 E48				H	370	8	DKI
82	01	30	18172	N07 E01	344	1700	3.0									
82	01	31	18172	N07 W13	345	1800	3.0									
82	02	1	18172	N07 W26	345	2000	3.0	22964	N10 W23	342	(AP)	3				
82	02	2	18172	N07 W40	345	1800	2.5	22964	N07 W34	339	(B)	3	H	590	34	FKI
82	02	3	18172	N07 W54	346	1500	2.0									

HALE REGION 18174 CMP DATE 30.9 RETURN OF REGION 18111 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	25	18174	N27 E67	344	300	1.0									
82	01	26	18174	N27 E55	343	600	1.0									
82	01	27	18174	N27 E42	343	700	1.0									

HALE REGION 18175 CMP DATE 31.1

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	25	18175	S09 E80	331	500	1.5									
82	01	26	18175	S09 E64	334	700	2.5	22951	S08 E62	336	(AP)	3	H	10	2	BXO
82	01	27	18175	S09 E48	337	700	2.5	22951	S10 E47	338	(BP)	3	H	20	8	BXO
82	01	29	18175					22951	S10 E18	340	(B)	4				
82	01	30	18175	S10 E05	340	2000	3.0	22951	S10 E04	340	(B)	4				
82	01	31	18175	S10 W08	340	2400	3.0	22951	S10 W09	341	(B)	4				
82	02	1	18175	S10 W22	341	2700	4.0	22951	S10 W25	344	(AP)	4				
82	02	2	18175	S10 W35	340	2700	3.5	22951	S10 W38	343	(AP)	4	H	80	12	DAI
82	02	3	18175	S10 W48	340	2300	3.0	22951	S11 W48	340	(B)	3	H	40	6	BXO
82	02	4	18175						S11 W60				H	10	2	AXX
82	02	5	18175					22951	S12 W75	340	(AP)	2	L	10	3	BXO

HALE REGION 18182 CMP DATE 31.5 RETURN OF REGION 18113 ROTATION 3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	26	18182	N12 E75	323	1500	2.5		N10 E73				M	370	5	DKI
82	01	27	18182	N12 E57	328	1500	2.5		N12 E48				H	370	8	DKI
82	01	30	18182	N09 E13	332	1400	2.5									
82	01	31	18182	N08 W02	334	1200	2.5									
82	02	1	18182	N08 W15	334	700	2.5		N12 W11				B	800	63	FKI
82	02	2	18182	N08 W28	333	1300	2.5		N10 W24				H	590	34	FKI

CONT

REGIONS OF SOLAR ACTIVITY

JANUARY 1982

HALE REGION 18182 (CONT) CMP DATE 31.5 RETURN OF REGION 18113 ROTATION 3

			CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	3	18182	N08	W41	333	1300	2.5		N11	W38				H	380	18	EKO
82	02	4	18182							N12	W48				H	210	12	EKO

HALE REGION 18173 CMP DATE 31.8 RETURN OF REGIONS 18112 AND 18124 ROTATIONS 6 AND 2

			CALCIUM PLAGE DATA							SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	24	18173	N10	E83	341	1100	2.5	22945	N14	E80	341	X	2	R	30	1	AXX
82	01	25	18173	N10	E78	333	4000	3.5	22948	N11	E78	333	(D)	4	H	290	6	DKC
82	01	25	18173	N10	E78	333	4000	3.5	22945	N11	E64	347	(AP)	3	H		1	AXX
82	01	26	18173	N13	E63	335	2700	2.5	22948	N12	E63	335	(BF)	5	H	400	5	DHI
82	01	26	18173	N13	E63	335	2700	2.5	22945	N11	E50	348	(AP)	3	H	10	1	AXX
82	01	27	18173	N13	E50	335	2700	2.5	22948	N09	E48	337	(BF)	4	H	370	8	DKI
82	01	29	18173						22948	N10	E28	330	(BY)	5				
82	01	30	18173	N13	E12	333	300	2.5	22948	N09	E09	335	(D)	5				
82	01	31	18173	N14	E02	330	3200	2.5	22948	N09	E04	328	(D)	5				
82	02	1	18173	N16	W10	329	2700	2.5	22948	N10	W10	329	(D)	5	B	800	63	FKI
82	02	2	18173	N16	W22	327	2700	2.5	22948	N10	W23	328	(BY)	5	H	590	34	FKI
82	02	3	18173	N16	W35	327	2700	2.5	22948	N10	W35	327	(BY)	5	H	380	18	EKO
82	02	4	18173							N12	W48				H	210	12	EKO
82	02	5	18173						22948	N11	W62	327	(B)	3	B	220	3	EKO

NOTE: No solar magnetograms were made at Kitt Peak National Observatory on January 1, 2, 5-9, 11, 12, 19, 21, 23, 28 and 29, 1982.
On these dates Calcium spectroheliograms from Sacramento Peak Observatory were used: January 4, 10 and 21, 1982.
No Mt. Wilson sunspot data were available for January 1, 4, 5, 10,19-23, and 28, 1982.

CONTIGUOUS PLAGES FOR JANUARY 1982: 18112/18124/18125
18172/18173/18182/18187/18188

DAILY CALCIUM PLAGE INDEX

JANUARY 1982

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
82	1	1	*	82	1	11	*	82	1	21	*
82	1	2	*	82	1	12	*	82	1	22	31.3
82	1	3	49.9	82	1	13	13.8	82	1	23	*
82	1	4	47.7	82	1	14	14.3	82	1	24	24.1
82	1	5	*	82	1	15	19.9	82	1	25	26.3
82	1	6	*	82	1	16	23.5	82	1	26	31.6
82	1	7	*	82	1	17	30.6	82	1	27	36.6
82	1	8	40.7	82	1	18	40.0	82	1	28	*
82	1	9	*	82	1	19	*	82	1	29	*
82	1	10	23.4	82	1	20	47.1	82	1	30	71.2
								82	1	31	91.6

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
01	0056	0343	0105	2+	3	2			2		4		0059	No data
01	0534	0617	0540	1-	1				1				0534	No data
01	1441	1513	1450	1-	1				1		1		NF	
01	1645	1722	1645	1-	1				1		1		1651	No data
01	2110	2157	2120	1	5				2		8		2113	No data
01	2210	2314	2218	1	3				1		6		*	
02	0031	0217	0058	2	5	1		1	2		3		*	
02	0606	0924	0623	3+	5	2			2		3		*	
02	0916	0948	0920	2	3			2					*	
02	1719	1750	1727	1-	1				1		1		1710	No data
02	2210	2306	2222	1-	3				1		9		*	
03	0013	0246	0028	2+	5	3			2		4		NF	
03	0642	0805	0654	1-	1				1				NF	
03	1244	1318	1250	1	3			2					*	
03	1403	1420	1407	1-	5	1		2	1	1	4		NF	
03	2002	2045	2012	1	3						3		2002	18113
04	0333	0437	0343	1-	3	1			1				0332	18119
04	2140	2205	2146	1-	1				1				2140E	18113
05	0406	0430	0415	1-	3						2		NF	
06	0304	0345	0309	1-	1				1				0310	No data
06	0739	0820	0745	1-	3				1		1		0740	No data
06	1949	2010	1953	1-	3						2		1949E	No data
07	0235	0312	0244	1-	3				1		1		0231	No data
07	0641	0726	0657	1-	1				1				NF	
07	0814	0952	0824	1-	1				1				0816	No data
07	1216	1240	1221	1-	5	1		3	1	1	3		*	
07	1645	1654D	1654	1-	1				1				1642E	No data
07	1659	1720	1705	1-	5				1		11		1702E	No data
07	1935	2015	1938	1	3						10		1942E	No data
07	2208	2242	2216	1-	3				1		1		2212	No data
08	0021	0109	0032	1-	1				1				0025	18113
08	0203	0346	0215	2	3	1			2		2		0203	18113
08	0433	0500	0444	1-	3				2				NF	
08	0536	0629	0544	1-	3				2				0540E	18113
08	0940	1000	0944	1-	3	1			1	1			0940	18113
08	1423	1550	1434	2+	5	2		4	1	1	13		NF	
09	0134	0159	0144	1-	1	1							0131	No data
09	0224	0300	0228	1-	3	1			2				NF	
09	0512	0634	0540	1-	1				1				0510	No data
09	0655	0730D	0708	1-	3				1	1			NF	
09	0730E	0930	0746	3	5			2	1	3			0729	No data
09	0940	1038	0948	1-	1				1				0946	No data
09	1124	1200	1128	3	5	4		4	1	1	3		*	
09	1409	1420	1413	1-	5			1	1	1	5		1358	No data
09	1730	1835	1740	1-	3				1		8		*	
10	0227	0344	0232	1-	3	1			2		2		NF	
10	0433	0548	0443	1-	3				2		3		NF	
10	2006	2030	2015	1-	3				1		5		NF	
10	2036	2126	2047	1-	3				1		6		*	
11	0302	0407D	0336	1-	3	1			1				NF	
11	0405E	0544	0417	1	1				1				*	
12	0432	0533	0440	1-	1				1				*	
13	0128	0408	0144	2+	3	2			2		4		0130E	18128
13	1950	2045	1956	1-	1				1				0039	18138
14	0040	0116	0053	1-	1				1				0256	18137
15	0356	0543	0412	1-	1				1				0356	18137
15	1439	1500	1458	1-	3			1			3		*	
15	1830	1900	1833	1-	3			1	1		8		NF	

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1982

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
16	0456	0545	0502	1-	3				2		2		0450E	18136
16	0628	0704	0632	1-	1				1				0628E	18136
16	1644	1723	1648	1-	3				1		6		1639	18137
16	2026	2045	2030	1-	3						4		2025	18136
17	0350	0442	0356	1-	1				1				0348	18158
17	2305	0011	2316	1-	3				1		2		*	
18	0532	0820	0602	1-	1				1				0523	18138
18	0828	0907	0847U	1	1			1					0833	18157
18	1431	1455	1437	1-	5			3		1	8		1430	18158
19	0254	0348	0300	1-	1				1				0253E	No data
19	1528	1630	1540	1-	3				1		9		*	
19	1652	1715	1659	1-	3				1		8		*	
19	1810	1845	1815	1-	3				1		1		*	
19	1951	2015	1953	1-	3						4		*	
19	2033	2130	2040	1-	3				1		9		*	
20	0323	0455	0332	1	3			1	2		5		0317	18138
20	0552	0650	0601	1-	3				2		2		0551E	18142
20	0655	0720	0700	1-	3			1	1				0659E	18139
20	1049	1110	1054	1-	3			2	1	1	1		1041	18137
21	0138	0210	0140	1-	1				1				NF	
21	0242	0322	0248	1-	1				1				0236	No data
21	0703	0808	0718	1-	1				1				*	
21	1206	1230	1214	1-	3	1		2		1			1205	No data
21	1426	1500	1431	1-	1				1				NF	
22	0258	0320	0304	1-	1				1				0256	18159
22	0443	0702	0455	3	5	1			2		5		0440	18159
22	1709	1730	1716	1	3						7		*	
23	0255	0336	0304	1-	1				1				*	
23	0339	0435	0354	1-	1				1				*	
23	0455	0556	0508	1-	3				2		2		*	
23	1813	1915	1825	1-	3				1				NF	
24	0029	0146	0044	1-	3				2		1		NF	
24	0154	0445	0208	3	5	2		1	2		3		NF	
24	1016	1126	1040	1-	3				1	1			NF	
24	1450	1515	1500	1-	3				1		1		*	
24	1741	2115	2000	3	3						3		*	
24	1940	2054	2008	2	5	4			1		10		1947E	18173
25	1532	1620	1600	1-	3						2		1532	18173
25	2047	2115	2054	1	3						6		2048	18151
25	2140	2200	2145	1-	1						1		2142	18151
26	0209	0417	0233	1-	3				1		1		0210	18151
26	0756	0842	0801	1-	3				1		1		*	
26	1518	1600	1523	1-	3				1				NF	
27	0519	0612	0526	1-	3		1		1		2		*	
27	0640	0717	0646	1-	1				1				0638	18183
27	0722	0810	0732	1-	1				1				0723	18176
27	1745	1805	1748	1-	3				1		2		*	
27	2115	2204	2120	1-	5	1			1		8		2111	18175
27	2208	2238	2213	1-	3				1		4		2209E	18182
27	2247	2352	2300	1	3				1		5		2247E	18182
28	0250	0342	0313	1-	3				2				*	
28	0345	0425	0351	1-	3				2				*	
28	0525	0638D	0543	1-	3			1	2		3		0526	No data
28	0642	0948	0718	3+	3				2		5		0643E	No data
28	0703	0810	0722	1+	3	3		1			2		*	
28	0938	0955	0944	1-	3			2		1			*	
28	1145	1205	1149	1-	3	1		1		1			*	
28	1521	1540	1526	1-	5			1	1		7		*	
28	1851	1905	1857	1-	3						5		*	

SUDDEN IONOSPHERIC DISTURBANCES

JANUARY 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
29	0220	0351	0247	2	3				2		1		0220E	No data
29	0351	0505	0402	1	1				1				*	
29	0543	0612	0547	1-	3				2		2		*	
29	0757E	0839	0803	1-	3			1	1		3		*	
29	0849	0913	0851	1-	3				1		1		*	
29	1027	1058	1037	1	3	1		2		1	1		*	
29	1040	1100	1048	1-	3	1		1		1	1		*	
29	1219	1240	1222	1-	3	1		1		1			*	
29	1626	1645	1630	1	3				1		8		*	
29	1736	1756	1750	1	3	1			1		7		*	
29	1759	1930	1802	1-	3				1		8		*	
29	2150	2234	2157	1-	3				1		3		*	
30	0030E	0220	0055	1	3				1		3		0030	18173
30	0046	0105	0051	1-	3						3		0045	18176
30	0248	0410	0305	1-	1				1				0248	18170
30	0414	0441	0425	1-	3				2				NF	
30	0441E	0551	0453	1-	3				1		3		NF	
30	0712	0858	0732	2	3			1	1		2		*	
30	0945	1001	0956	1-	3			2	1				NF	
30	1210	1330	1222	2	5	3		4	1	1	2		*	
30	1710	1730	1715	1-	5				1		7		*	
30	1756	1830	1806	1-	5				1		12		*	
30	1831	2000	1840	1-	5				1		10		*	
30	2329	0317	2359	3	5	2			2		5		*	
31	0507	0627D	0530	1-	3				1		3		0510	18188
31	0627E	0830	0642	1+	3			1	2		2		0630	18188
31	1044	1210	1054	1-	3	1		1	1	1	1		*	
31	1246	1305	1252	1	3			2	1	1	3		*	
31	1320	1400	1331	2+	5	3		4	1	1	7		*	
31	1836	1900	1844	1+	3						12		*	
31	2204	2330D	2224	2	5	1			1		5		*	
31	2330	0032D	2358	1-	3	1			1				*	

SIDs BY HALE REGION

JANUARY 1982

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
18113			1	1				4																							
18119				1																											
18128													1																		
18136																3															
18137															1	1				1											
18138														1				1		1											
18139																				1											
18142																				1											
18151																									2	1					
18157																		1													
18158																	1	1													
18159																						2									
18170																														1	
18173																								1	1					1	
18175																											1				
18176																											1			1	
18182																											2				
18183																											1				
18188																															2
NO FLARE	1		3		1		1	2	2	3	1		1		1						2		1	3		1				3	
NO FLARE PATROL		5	1				1		2	1	1	1			1		1		5		1	1	3	2		1	2	7	11	6	6
NO DATA	4	1				3	6		5										1		2							2	1		
EVENT TOTALS	5	6	5	2	1	3	8	6	9	4	2	1	2	1	3	4	2	3	6	4	5	3	4	6	3	3	7	9	12	11	8

OBSERVATORIES REPORTING FOR JANUARY 1982:

Ayrshire, Scotland (AY)	SES	Lintong, China (LT)	SPA
Darmstadt, GFR (DA)	SWF	Louisville, Kentucky, USA (A26)	SES
Edenvale, South Africa (A52)	SES	Mayfield Village, Ohio, USA (A28)	SES
Eureka, Montana, USA (A55)	SES	Maui, Hawaii, USA (MI)	SWF
Farsta, Sweden (FS)	SES	Missoula, Montana, USA (A31)	SES, SWF
Frenchtown, Montana, USA (A56)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF
Glenorchy, Tasmania, Australia (GN)	SWF	Paterson, New Jersey, USA (A46)	SES
Hiraiso, Japan (HI)	SWF	Portage, Michigan, USA (A51)	SES
Hobart, Tasmania, Australia (TA)	SEA	Roswell, New Mexico, USA (RW)	SES
Hobart, Tasmania, Australia (A43)	SES	St. Cloud, Minnesota, USA (SC)	SES
Houston, Texas, USA (A50)	SES	Sofia, Bulgaria (SF)	SEA
Huancayo, Peru (HU)	SWF	Sao Paulo, Brasil (UM)	SES, SPA
Inubo, Japan (IN)	SPA	Thornwood, New York, USA (A48)	SES
Juliusruh, GDR (JU)	SWF	Trenton, New Jersey, USA (NJ)	SES
Kasugai, Japan (KA)	SPA	Upice, Czechoslovakia (UI)	SEA
Kuhlungsborn, GDR (KU)	SEA, SPA	Valley Cottage, New York, USA (A1)	SES
Lake Hiawatha, New Jersey, USA (A32)	SES	Vsetin, Czechoslovakia (VS)	SEA
Latrobe, Pennsylvania, USA (A19)	SES	Yakima, Washington, USA (A37)	SES

NF No Flare
* No Flare Patrol
Observations are not necessarily continuous for each reporting station.

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0735	CULG				0006	0730					IIIN,W
			LEAR				0052.7	0058.7	2				III
			CULG	0054.5	0057.6	2	0055.5	0059	2	0056	0101	2	IIIGG
			CULG	0058	0059.5	2	0058	0115.5	3			II	
			LEAR				0058.4	0120.1	2			II	
			PALE				0059.8	0103.7	2			II	
			CULG							0100	0107	1	SWF
			CULG	0101		2	0101		1				IIIB
			LEAR				0128.5	0133.4	1				III
			CULG				0130	0133.5	1				IIIG
			LEAR				0226.7	0227.1	1				III
			CULG				0227		1				IIIB
			LEAR				0230.5	0230.9	1				III
			LEAR				0412.2	0412.7	1				III
			LEAR				0724.8	0729.9	1				III
	0757	1444	WEIS				0957.5	0958.2	1				IIIG
			WEIS				1147.7	1147.9	2				IIIG
	1413	2340	HARV				1436	1734	1				IN
			HARV	1551	1552	2	1551	1552	3				IIIG
			HARV				1616	1713	2				IIIN
			HARV				1630		2				IIIG
			HARV	1643	1644	2							IIIG
			HARV				1734	1832	2				I
			HARV				1803		3				IIIG
			HARV				1833	2306	1				IN
			PALE				2105.5	2112.5	2				G
			CULG				2105.5	2113.5	2				IIIG,V
			CULG	2106	2111	1							IN
			HARV				2106	2111	2				IIIG
			CULG				2239	2240.5	1				IIIG
			HARV				2239	2240	2				IIIGG
			LEAR				2239.2	2239.8	1				III
			PALE				2239.3	2239.5	1				III
			CULG	2239.5		1	2239.5		2				IIIB
			LEAR				2256.8	2357.3	1				III
			PALE				2256.8	2257.3	1				III
			CULG				2257	2257.5	2	2257	2257.5	1	IIIB,V
02	0000	0736	CULG				0000.5	0001 2	2	0000.5	0001 1	1	IIIB,V
			PALE				0000.7	0001.1	1				III
			LEAR				0000.7	0001.4	2				III
			LEAR				0013.3	0014.6	1				III
			CULG				0013.5	0014.5	1				IIIG
			LEAR				0044.4	0045.5	2				III
			CULG				0044.5	0045.5	2	0044.5	0045	1	IIIG,U
			CULG				0046.5	0610					IIIN,W
			LEAR				0454.2	0458.1	1				III
			LEAR				0607.9	0617.5	3				III
			CULG	0611	0611.5	2	0610	0615	3	0610.5	0613	2	IIIG,V
			CULG							0612	0625	1	SWF
			CULG				0613.5	0651	2			II	
			LEAR				0621.0	0639.6	1			II	
			LEAR				0649.5	0651.3	1				III
	1050	1500	BLEN				1050.7	1050.7	1				III
	0813	1456	WEIS				1119.4	1119.5	1				IIIB
			BLEN				1144.2	1147.4	1				IIIG
			BLEN				1233.6	1233.6	1				III
			BLEN				1330.2	1332.7	2				U
	1413	2345	HARV				1429	1519	2				IIIN
			HARV				1431	1432	2				IIIG
			BLEN				1431.4	1431.6	1				III
			BLEN				1440.5	1440.6	1				U
			HARV				1726	1727	2				IIIGG
			HARV	1833		1	1833	1834	1				IIIGW
			HARV				2105	2106	2	2105	2106	2	IIIG
			PALE				2105.4	2106.1	2				V
	2036	2400	CULG				2105.5	2106	2				IIIB,V
			PALE				2112.7	2113.3	1				V
			CULG				2113	2113.5	2				IIIG
			HARV				2113		2	2113		2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
02			PALE				2136.3	2147.5	1				GG
			HARV				2137		2				IIIG
			CULG				2137	2137.5	2				IIIG,U
			CULG				2229.5						IIIB,W
			PALE				2254.9	2257.0	3				V
			LEAR				2254.9	2256.5	3				III
			CULG	2255		2	2255	2256.5	3	2255	2256	3	IIIG,V
			HARV	2255		1	2255	2256	3	2255	2256	3	IIIG,V
			CULG				2321		1				IIIB
			LEAR				2326.2	2326.5	1				III
			CULG				2326.5		2	2326.5		1	IIIB
03			CULG				0011	0020	3	0012	0018.5	2	IIIGG
			LEAR				0011.0	0052.7	2			IV	
			PALE				0011.4	0039.0	2			IV	
	0000	0735	CULG	0012.5	0018.5	1							IN
			CULG	0018	0019.5	1							DCIM
			CULG							0019	0030	1	SWF
			CULG				0020	0052	2			II	
			CULG				0639.5	0649					IIIN,W
			LEAR				0640.4	0641.5	2				III
			CULG	0640.5		1	0640.5	0641.5	2	0640.5	0641	2	IIIG,V
			CULG				0649.5	0654	1			II	
			LEAR				0649.6	0653.1	1				III
			CULG				0656	0702	1				IS
	0755	1456	WEIS										
	0845	1500	BLEN				0957.7	0957.9	2				III,U
			BLEN				1219.3	1219.4	2				III
	1413	2345	HARV				1853	1854	2	1853	1854	2	IIIG
			HARV	1959	2000	2							I
			HARV				2007	2011	2			II	
	2055	2400	CULG	2134	2134.5								DCIM
			HARV	2134		2	2134		2				IIIG
			CULG				2153	2254.5		2154.5	2159.5		IIIN,W
			CULG				2158.5	2159	2				IIIB,V
			CULG				2219	2220					I
			CULG				2221.5	2223.5					IIIGG,W
			CULG	2337	2338.5	1							DCIM
			HARV	2337	2339	1	2337	2339	2				IIIG
04	0000	0737	CULG	0125	0126	1							DCIM
			CULG	0215.5	0216	1							I
			CULG				0623.5		2	0623.5		2	IIIB
			LEAR				0908.6	0909.7	1				III
	0756	1350	WEIS				0915	0918	2				I
			LEAR				1046.9	1047.3	1				III
	0845	1500	BLEN	1059.1	1102.9	2	1059.1	1102.9	2				IIIG,U
	1356	1458	WEIS	1059.2	1101.3	2							IIIG
	1413	2345	HARV				1449	1445	2				IIIG,U
			BLEN				1451.8	1452.2	2				III
			HARV				1457	1507	3			II	
			HARV				1642	1758	1				IN
			HARV				1758	1820	2				I
			HARV				1918	1919	2				IIIB
			HARV				2149	2153	1				IIIG
	2038	2400	CULG	2153	2153.5								DCIM
			CULG	2359.5	2400	2	2359.5	2400	1				IIIG
05	0000	0737	CULG				0122.5	0123					IIIG,W
			CULG	0446.5	0450.5	1							IN
	0755	1459	WEIS										
	0845	1500	BLEN										
	1413	2345	HARV				1538	1539	2				IIIG
			HARV				1622		1				IIIGW
			HARV	1812		1	1812		2				IIIB
			HARV	1923		1							IIIB
			HARV				2136		2				IIIG
	2038	2400	CULG	2136.5		2							IIIB
			CULG	2253.5	2256.5	1							DCIM
			HARV	2254	2256	2	2253	2256	3				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05			CULG	2315		1							DCIM
			HARV				2316		2				IIIB
06	0000	0738	CULG										
	0756	1500	WEIS										
	1413	2340	HARV										
	2038	2400	CULG										
07	0000	0738	CULG										
	0756	1253	WEIS										
	0845	1500	BLEN	1111.2	1111.4	2							DCIM
	1301	1501	WEIS										
	1413	2350	HARV				1616	1619	1				IIIGGW
			HARV	1755	2145	1							INW
			HARV				2050	2100	1				INW
	2039	2400	CULG	2231.5	2232.5								DCIM,W
			HARV	2232		1	2232		1				IIIGW
			HARV				2348		2				IIIG
08	0000	0739	CULG	0119.5	0120	2	0119.5	0120	2				IIIG
			LEAR				0119.8	0120.1	1				III
			CULG				0545						IIIB,W
	0756	1503	WEIS				0802.2	0802.6	2				IIIG
			LEAR				0802.3	0802.9	1				III
	0845	1500	BLEN										
			LEAR				0930.8	0934.2	1				III
			LEAR				0931.8	0935.2	1				III
			WEIS				0934.6	0934.8	1				IIIG
	1413	2350	HARV	1424	2258	1	1506	2340	1				INW
			HARV				1628	1629	2				IIIG
			HARV				1719	1720	2				IIIG
			HARV				1731		2				IIIB
			PALE				1737.1	1737.5	1				III
			HARV				1840	1841	3	1840	1841	2	IIIG
			HARV				1855	1907	2				IIIGG
			HARV				1937		3	1937		2	IIIG
			HARV				2009	2014	1				IIIGW
			HARV	2028	2036	1	2022	2040	3				IIIGG
			HARV				2047		1				IIIG
			HARV				2105	2108	3	2105	2107	2	IIIGG
			PALE				2105.4	2107.0	1				G
	2053	2400	CULG	2105.5	2107	1	2105.5	2107	2	2106	2107	1	IIIG
			HARV				2143	2144	3	2143	2144	2	IIIG
			PALE				2143.0	2144.4	2				G
			HARV				2346	2349	1				IIIGW
			CULG				2348.5		1				IIIB
			LEAR				2348.7	2348.9	1				III
09	0000	0739	CULG	0024.5	0025.5	1							I
			CULG				0249						IIIB,W
			CULG				0427.5		1				IIIB
			CULG	0530	0531.5	1							I
			CULG	0530	0533	1							CONT
			CULG				0542.5	0545					DC,W
			CULG	0545	0548	1							CONT
			CULG	0551	0635	3							CONT
			CULG				0639.5	0640	2				IIIB
			LEAR				0639.6	0640.1	1				III
			CULG				0724	0724.5	1				IIIB
	0845	1500	BLEN										
	0753	1505	WEIS				1051.6	1051.9	2				IIIG,RS,U
			SGMR				1258.5	1300.0	1				III
			WEIS				1323.2	1324.1	2				IIIG
	1413	2340	HARV	1427	1843	1							INW
			HARV	1742		1	1742		2				IIIG
			HARV				1911		1				IIIB
			HARV				1927	2732	1				INW
			HARV				2033	2034	1				IIIGW
	2040	2400	CULG				2119.5	2308.5					IIIN,W
10			LEAR				0519.4	0519.8	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
10	0000	0739	CULG				0519.5		1				IIIB
			LEAR				0608.6	0609.7	1				III
			CULG				0609		1				IIIB
			CULG				0609.5						IIIB,W
			CULG				0624.5						IIIB,W
	0754	1044	WEIS										
	0940	1500	BLEN										
	1413	2350	HARV				1445	1811	1				IN
			HARV				1811	2347	2				I
			HARV	2037	2040	1	2037	2043	2				IIIGG
	2040	2450	CULG				2043.5	2358.5					IN,W
			CULG	2121.5	2334.5	1							IN
			CULG				2243.5						IIIB,W
			CULG				2350.5						IIIB,W
11	0000	0740	CULG				0239.5		1				IIIB
			LEAR				0239.6	0239.9	1				III
			CULG	0414	0740	1							IN
	0845	1500	BLEN				1028.3	1240.8	2				I,N
			WEIS				1118.6	1122.2	3				IIIG,U
			WEIS				1154.7	1154.9	1				IIIG
	1413	2350	HARV				1433	2259	1				IN
			HARV				1629	1633	2	1631	1632	2	IIIGG,V
			HARV				1643	1644	1				IIIGW
			HARV				1803	1806	3	1804	1806	2	IIIGG
			HARV	1810		1	1810	1823	3	1814	1822	1	IIIGG
			HARV	2000	2001	1	1959	2001	1				IIIGW
	2040	2400	CULG	2043	2205	1	2043	2359.5	1				IN
			HARV	2146	2148	1							I
			CULG	2205	2400	1							IS
			HARV				2259	2350	2				I
			HARV	2330	2350	1							I
12	0000	0740	CULG	0000	0102	1							IS
			CULG			1	0023						IIIB,W
			CULG	0102	0727	1							IN
			CULG				0451						IIIB,W
	0753	1217	WEIS										
	0845	1500	BLEN				1120.8	1121.8	2				IIIG
			BLEN				1127.4	1127.5	1				UNCL
			BLEN				1135.3	1135.4	1				UNCL
			BLEN				1209.3	1209.8	1				III
			BLEN				1209.9	1215.8	1				I,N
	1441	1507	WEIS										
	1413	2355	HARV	1457	2200	1	1459	1543	1				IN
			HARV				1543	2148	2				I
			HARV	1638	1639	1							IIIG
			HARV	1705		1	1705		2				IIIB
	2112	2400	CULG	2112 2	2400	1							IS
			CULG				2120	2137	1				IN
			CULG				2131.5	2351					IIIN,W
			HARV				2148	2355	1				IN
			HARV				2236	2237	1				IIIG
			HARV				2300	2301	1				IIIB
13	0000	0734	CULG	0000	0035	1							IS
			CULG	0035	0706	1							IN
			CULG				0044	0045	2				IIIG
			LEAR				0044.0	0044.9	1				III
			CULG				0047.5						IIIN,W
			CULG	0119		1	0119		2				IIIB
			CULG				0129.5	0130.5	1	0130	0131	1	IIIG,U,V
			LEAR				0129.7	0134.4	1				III
			CULG	0133	0155	1						IV	
			CULG				0135.5	0150	2			II	
			CULG							0136	0151	1	SWF
			LEAR				0136.5	0149.8	2			II	
			CULG				0137	0155	2			IV	
			PALE				0138.3	0139.6	2				G
			LEAR				0149.8	0322.0	1			IV	

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			CULG				0200	0305	1				IV
			CULG				0239.5	0240	1				IIIB
			LEAR				0239.8	0240.2	1				III
			CULG	0354	0450	1							CONT
			CULG	0448.5	0723	1	0433	0647	1				IN
	0752	1133	WEIS										
			LEAR				0800.8	0801.9	2				III
	0840	1510	BLEN				0917.5	1035.9	1				I,N
	1241	1509	WEIS				1357.9	1358.0	1				IIIB
	1413	2345	HARV				1445	2102	1				IN
			HARV				1628	1630	3	1629	1630	2	IIIGG
			PALE				1730.0	1738.0	2				G
			HARV				1854	1855	2				IIIG
	2043	2400	CULG				2130	2141	1				IIIN
			CULG				2213	2216	1				IIIG
			HARV				2214	2215	2				IIIG
			HARV	2225		1	2224	2226	2				IIIG
			CULG				2323.5	2327					I,W
			CULG				2325.5	2327					IIIG,W
14	0000	0740	CULG	0015.5	0016	1	0015.5	0016	2				IIIG
			CULG				0044.5	0103					IIIN,W
			CULG				0441	0441.5	1				IIIG,U
			CULG				0547		1				IIIB
			CULG				0727.5	0728.5					IIIG,W
	0840	1510	BLEN										
	0751	1510	WEIS				0938.6	0938.8	1				IIIG
			WEIS				1041.7	1041.9	1				IIIB
	1413	2345	HARV	1502	1503	2							I
			HARV				1707	1708	2				IIIGG
			HARV				1752	1753	1				IIIG
	2041	2400	CULG				2045.5						IIIB,W
			HARV				2329	2345	1				IN
			CULG				2340.5	2359					IIIN,W
15	0000	0741	CULG				0306	0733.5					IIIN,W
			CULG				0410	0445					IN,W
			CULG				0445	0741	1				IS,C
			CULG				0447	0505					IIIS,W
	0751	1511	WEIS										
	0840	1510	BLEN				1152.1	1153.1	2				IIIG
	1413	2305	HARV				1417	2305	1				IN
	2042	2400	CULG				2040.5	2400	1				IN
			CULG				2146.5	2147.5	1				IIIG
			CULG				2238.5	2239.5	1				IIIG
			HARV	2248	2305	1							INW
			CULG	2344	2400								IS,W
16	0000	0741	CULG	0000	0028.5								IS,W
			CULG	0028.5	0117.5	1	0000	0058	1				IN
	0750	1028	WEIS										
	0840	1510	BLEN										
	1100	1513	WEIS										
	1412	2345	HARV				1415	2345	1				IN
	2042	2400	CULG										
17	0000	0742	CULG				0147.5	0148					IIIG,W
			CULG				0239.5	0348					IN,W
			CULG				0239.5	0348					IN,W
			CULG				0348	0742	1				IS
			CULG	0531		1							DCIM
			CULG				0554	0737.5					IIIN,W
			LEAR				0737.0	0737.5	1				III
			LEAR				0814.5	0814.8	1				III
	0748	1515	WEIS				1317.2	1317.3	1				IIIB
			WEIS				1327	1513	2				IIIN
	1413	2345	HARV				1413	2345	2				I
			CULG				2050	2359					IIIN,W
	2043	2400	CULG	2355	2400		2044	2400	1				IS,DC
18	0000	0742	CULG	0000	0125	1	0000	0535	1				IS

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
18			CULG				0008.5	0018.5					IIIN,W
			CULG	0204	0204.5	2							DCIM
			CULG	0444	0610	1							IS
			LEAR				0451.5	0451.9	1				III
			CULG				0535	0742.5	1				IS,C
			LEAR				0609.4	0613.3	1				III
			CULG	0610	0648.5	1							IN
			LEAR				0624.7	0816.5	1				CONT
			CULG				0735		1				IIIB
			CULG	0740		1	0740	0740.5	2				IIIG,U
	0758	1516	WEIS				1024.3	1027.8	1				IIIG
			WEIS				1119.4	1120.9	1				IIIG
	1120	1510	BLEN				1120 E	1510 D	1				I,DC
			BLEN				1131.2	1131.8	1				IIIG
	1413	2400	HARV				1417	1900	1				I
			HARV	1427	2308	1							IN
			HARV				1700	1701	2				IIIB
			HARV				1750		2				IIIG
			HARV				1841	1852	2				IIIGG
			HARV				1900	2112	3				IC
			PALE				1938.0	0330.0	1				CONT
			HARV				2112	2240	2				IC
			LEAR				2213.0	0150.5	1				CONT
	2050	2400	CULG	2219	2400	1	2050	2400	2				IS,C
			HARV				2240	2400	1				I
			CULG				2305	2310	1				IIIS
19	0000	0742	CULG	0000	0334.5	1	0000	0225.5	1				IS
			LEAR				0201.2	0201.4	1				III
			CULG				0201.5	0716					IIIN,W
			LEAR				0211.8	0219.8	1			II	
			CULG				0212	0219.5				II	W
			CULG	0225.5	0742.5	1	0225.5	0430	1				IN
			LEAR				0317.9	0318.6	1				III
			CULG				0318	0319	1				IIIG
			LEAR				0407.8	0408.1	1				III
			CULG				0430	0742.5	2				IS
			LEAR				0505.5	1055.0	1				CONT
	0747	0800	WEIS								1		
	0830	1510	BLEN				0830 E	1510 D	2				I,NS
	0854	1049	WEIS				0854	1517	2				IS
	1134	1517	WEIS										
			BLEN	1411.1	1411.3	2							DCIM
	1413	2400	HARV				1413	1712	3				IC
			HARV	1440	2333	1							IN
			HARV				1712	2400	1				I
	2043	2400	CULG				2045	2206.5	1				IN
			CULG	2206.5	2400	1	2206.5	2400	1				IS
			CULG				2214.5						IIIB,W
			CULG				2335	2400	1				IS
20	0000	0743	CULG	0000	0205	1	0000	0149	1				IS
			CULG	0358	0742	1	0149	0742.5	1				IN
			CULG				0724						IIIB,W
			CULG				0726	0730	1			II	
	0830	1510	BLEN				0830 E	1510 D	1				I,DC
			WEIS				0844.7	0844.9	2				IIIG
			WEIS				1018.8	1018.9	1				IIIB
	1413	2355	HARV				1416	2355	1				I
			WEIS				1417.6	1417.9	2				IIIG
			WEIS				1420.4	1420.5	1				IIIG
			HARV	1651	1934	1							INW
			HARV				1747	1802	2	1747	1802	2	IIIGG
			HARV				1811	1812	2	1811	1812	2	IIIG
			HARV				1820		2	1820		1	IIIG
			HARV				1839	1849	2	1839	1849	2	IIIG
			HARV				1856	1901	2	1856	1901	2	IIIGG
			HARV				1908	1916	2	1908	1916	2	IIIG
			HARV				1945	1958	2	1945	1958	2	IIIGG
			HARV				2023		2	2023		2	IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
20			HARV				2040		1	2040		1	IIIG
	2043	2400	CULG				2043	2359	1				IS
			CULG				2045.5	2333.5					IIIN,W
			HARV				2100	2103	2	2100	2103	2	IIIG
			CULG				2100.5	2333.5	1	2103	2334	1	IIIN
			CULG				2103	2322	2	2201.5	2248	2	IIIN
			CULG	2121.5	2400	1							IN
			HARV				2128	2132	3	2128	2132	2	IIIG
			CULG				2128.5	2129.5	3	2129		2	IIIG
			HARV				2201	2204	2	2201	2204	2	IIIG
			HARV				2248		2	2248		1	IIIG
21	0000	0743	CULG	0000	0105	1							IN
			CULG				0000	0419.5	1				IS
			CULG				0002	0113	1	0002	0113	1	IIIN
			CULG				0003.5	0134.5	2	0004	0134.5	2	IIIN
			CULG				0008.5	0205					IIIN,W
			LEAR				0111.9	0113.2	2				III
			LEAR				0120.5	0134.8	2				G
			LEAR				0120.5	0000.0	2				G
			LEAR				0812.6	0813.2	2				III
	0744	1303	WEIS				0812.6	0813.3	3				IIIG
			WEIS				0820.4	0822.8	2				IIIG
			LEAR				0822.4	0823.2	1				V
			LEAR				0901.0	0907.8	1				V
			WEIS				0901.1	0902.2	1				IIIG
			WEIS				0905.6	0907.3	2				IIIG
			WEIS				1011.2	1023.8	3				IIIGG
			LEAR				1022.1	1023.1	1				III
	1330	1521	WEIS										
	1413	2355	HARV				1432	1955	1				INW
			HARV				1559	1608	2			II	
	2044	2400	CULG	2320		1							DCIM
			HARV	2320		2							IIIG
22	0000	0743	CULG				0122						IIIB,W
			CULG				0317.5	0319.5					IIIN,W
			CULG	0443.5	0449	1							CONT
			CULG	0445.5			0445.5						IIIB,W
			CULG				0446	0447.5	2	0446.5	0448	2	IIIG,V,Z
			LEAR				0446.8	0451.5	2				III
			CULG							0447	0451	1	SWF
			CULG				0447.5	0505.5	2			II	
			LEAR				0451.5	0507.5	1			II	
			CULG				0502.5	0530				IV	W
			CULG				0642.5	0643					IIG,W
			LEAR				0642.7	0643.2	1				III
	0744	1523	WEIS										
	1413	2300	HARV				1416	2300	1				INW
			HARV				1716		2				IIIG
	2044	2400	CULG				2132.5	2133					IIIG,U,W
			CULG				2217	2306					IN,W
23	0000	0740	CULG										
	0742	1525	WEIS				1213.3	1216.7	1				IIIGG
	1412	2340	HARV				1522	2107	1				INW
			HARV	2038		1							I
	2203	2400	CULG				2319	2319.5					IIIG,W
			LEAR				2355.8	2356.0	1				III
			CULG				2356		1				IIIB
24			LEAR				0043.2	0043.5	1				III
	0000	0744	CULG				0043.5						IIIB,W
			CULG				0633						IIIB,W
			LEAR				0832.8	0834.2	2				III
	0742	0952	WEIS				0832.9	0833.6	3				IIIGG
			LEAR				1034.5	1034.9	2				III
	1116	1525	WEIS										
	1413	2400	HARV	1528	1529	1							I
			HARV				1601		2				IIIG

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			HARV				1737	1738	2				IIIG
	2044	2400	CULG				2223	2223.5	1				IIIB
			CULG	2335	2336.5	1	2335	2336.5	2	2335	2336.5	2	IIIG
			HARV				2335	2337	2				IIIG
			LEAR				2335.0	2336.5	1				III
25	0000	0744	CULG				0149						IIIB,W
			CULG				0524.5	0528.5					IIIN,W
	0740	1428	WEIS				1202.9	1203.2	1				IIIG
			WEIS				1336.8	1338.3	3				IIIG
	1413	2348	HARV				1428	2348	1				INW
	2045	2400	CULG				2054	2054.5	1				IIIG,U
			HARV				2157	2158	2	2158		1	IIIG
			CULG	2157	2158.5	2	2157	2158.5	1				IIIG
			CULG				2202		1				IIIB
			CULG				2224.5						IIIB,W
26	0000	0744	CULG				0003.5	0005.5	1				IIIG
			LEAR				0004.9	0005.3	1				III
			CULG	0147.5		1	0147.5		1				IIIB
			CULG				0150	0151	2	0150	0151.5	1	IIIG,U
			PALE				0150.0	0151.3	1				G
			LEAR				0150.0	0152.0	2				III
			CULG				0152		1				IIIB
			LEAR				0210.5	0211.1	1				III
			CULG				0210.5	0736					IIIN,W
			LEAR				0451.5	0452.8	2				III
			CULG				0451.5	0452	3	0451.5	0452	2	IIIB,Z
			CULG				0502.5	0503	1				IIIG
			LEAR				0502.6	0503.3	1				III
			LEAR				0517.3	0518.8	2				III
			CULG				0517.5	0518.5	2				IIIG
			LEAR				0717.4	0718.1	1				III
			CULG				0717.5	0718	2				IIIB,U
			LEAR				0730.8	0915.3	1				CONT
			CULG				0732		1				UNCLF
	0744	1454	WEIS				0944.0	0944.9	2				IIIG
			WEIS				1046.2	1046.9	3				IIIG
			LEAR				1046.3	1046.5	1				III
			WEIS				1232.2	1233.9	3				IIIG
	1359	2355	HARV	1455		2							IIIG
	1458	1530	WEIS										
			HARV				1458	1817	1				INW
			HARV				1829	1836	1				IIIGG
			HARV	1910	1911	1	1911	1912	2				IIIB
			HARV	2138	2140	2	2138	2140	2				IIIG
	2045	2400	CULG	2140									DCIM,W
27	0000	0744	CULG				0026.5	0027.5	2	0026.5	0027.5	2	IIIG,V
			LEAR				0026.7	0027.3	1				III
			PALE				0026.7	0027.5	1				III
			LEAR				0301.9	0302.3	1				III
			CULG				0302						IIIB,W
			LEAR				0611.5	0611.7	1				III
			CULG				0611.5	0626.5					IIIN,W
			LEAR				0625.9	0626.4	1				III
	0737	1531	WEIS										
			LEAR				1046.3	1046.5	1				III
	1401	2400	HARV				1432	2230	1				INW
			HARV				1542	1543	2				IIIG
			HARV				1730	1732	2	1731	1732	1	IIIG
			HARV	1744	1746	1							IIIG
			HARV				1809	1812	3	1809	1812	2	IIIG
			HARV	1815		2							IIIG
			HARV	1935	2302	1							INW
	2045	2400	CULG				2051.5	2339.5					IIIN,W
			HARV	2115		1	2115	2117	1	2115	2117	1	IIIGW
			CULG				2115.5	2335.5	1				IIIN
			HARV				2131		2				IIIB
			HARV	2205	2210	1							IIIGW

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			CULG				2250.5	2251	2	2250.5	2251	1	IIIB,U
			PALE				2250.5	2255.7	3				G
			HARV	2252	2255	2	2250	2302	3	2250	2255	2	IIIGG,V
			CULG	2253	2255	1	2253	2256	3	2253	2256	3	IIGG,V
			CULG				2301.5	2400	1				IS
			HARV				2325	2326	2				IIIG
			LEAR				2325.3	2335.3	1				G
			LEAR				2350.5	2351.0	1				III
			LEAR				2353.0	2355.3	3				III
28	0000	0745	CULG				0000	0158					IN,W
			CULG				0001	0001.5	2	0001	0001.5	2	IIIG
			CULG				0006.5	0444					IIIN,W
			CULG	0008.5	0445.5	1	0048.5	0540	2	0048.5	0446	1	IIIG,N
			CULG				0041.5	0451.5	1				IIIN
			CULG	0326	0327.5	2	0326	0327.5	3	0327	0328	1	IIIGG,U,V
			CULG	0525.5	0527.5	2	0525	0528	3	0525.5	0528.5	3	IIIGG,V
			CULG				0703	0934	2			II	
			CULG							0704	0719	1	SWF
			CULG	0704.5	7074.5	2						IV	
			CULG				0725	0745	1				IS,DC
			CULG				0734	0745	2				IIIS
			WEIS				0738	0845	2				I
	0735	1536	WEIS				0738	1534	2				IIIN
			WEIS				0740.0	0757.0	2				IIIGG
			WEIS				0934.7	0935.2	2				IIIG
			WEIS				0941.1	0946.2	3				IIIGG
			WEIS				1032.4	1032.3	3				IIIG
			WEIS				1114.3	1115.1	2				IIIG
			WEIS				1118.1	1118.9	2				IIIG
			WEIS				1129.2	1129.6	2				IIIG
			WEIS				1150.5	1150.8	2				IIIG
			WEIS				1304.4	1307.6	2				IIIG
			WEIS				1309.1	1309.9	2				IIIG
	1401	2400	HARV				1410	2400	2				I
			HARV	1421	2400	1							INW
			HARV	1657		2	1657		2				IIIG
			HARV	1736	1741	1	1736	1741	2	1736	1741	2	IIIG
			HARV	1756		2	1756		2				IIIG
			HARV	1805		1	1805		3	1805		2	IIIG
			HARV	1831		1	1825	1831	2	1825	1831	2	IIIG,V
			HARV				1845	1846	1				IIIG
	2045	2400	CULG	2045	2400	1							IS
			CULG				2048	2400					IN,W
			CULG				2141	2347					IIIN,W
			HARV				2150	2151	2	2150	2151	1	IIIG
			CULG				2150.5	2151	2				IIIG
			HARV	2238	2241	3							IIIG
			CULG				2248	2347	1				IIIN
			HARV				2248	2255	3				IIIGG
29			CULG	0000	0745	1							IS
	0000	0745	CULG				0000	0107.5					IN,W
			CULG				0001	0744.5					IIIN,W
			CULG				0009	0341	1				IIIN
			CULG				0017.5		1				DP
			CULG				0422.5	0423.5	2	0423	0423.5	2	IIIG,V
			CULG				0451	0502	1				IIIS
			CULG				0503.5	0506	1				I
	0733	1051	WEIS				0737	1538	2				IN
	1054	1538	WEIS				0750	1321	1				IIIN
	1401	2350	HARV				1407	2350	3				IC
			HARV	1423	2350	1							I
			HARV				1725	1726	3	1725	1726	2	IIIG
			HARV				1853	1854	2	1853	1854	2	IIIG
			HARV				1900	2314	2	1900	2143	2	IIIN
			HARV				1953	1954	2	1953	1954	2	IIIG
	2045	2400	CULG	2045	2400	1	2045	2400	1				IS,C
			CULG				2046.5	2400					IIIS,W
			CULG				2055	2348.5	1				RSDP,N

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
29			HARV				2058		3	2058		2	IIIG
			CULG				2058	2313.5	2				IIIN
			HARV	2125		2	2121	2132	3	2121	2132	2	IIIGG
			CULG	2125	2252.5	1	2103.5	2336.5	1	2209	2252.5	1	IIIN
			HARV				2139	2140	2	2139	2140	1	IIIG
			HARV	2209	2213	2	2209	2214	3	2209	2212	2	IIIGG
			HARV	2249	2252	2	2249	2253	3	2249	2252	2	IIIGG
30	0000	0745	CULG	0000	0745	1	0000	0745	1				IS,C,DC
			CULG				0000	0745					IIIS,W
			CULG				0005.5	0745	1				RSDP,N
			CULG				0028.5	0743	1				IIIN
			CULG	0046	0128.5	1							DCIM,N
			CULG				0135	0742	2				IIIN
			CULG				0246.5	0325	1				IIIS
			CULG	0606	0606.5	1	0605.5	0607	2				IIIG,V
			WEIS				0731	1540	2				CONT
			WEIS				0737	1540	3				DC
	0731	1540	WEIS				0737	1540	2				IIIN
			WEIS				0812.2	0816.3	2				IIIG
			WEIS				0825.8	0826.0	2				IIIG
			WEIS				0852.4	0857.3	2				IIIG
			WEIS				1005.0	1019.7	3				IIIGG
			WEIS				1137.4	1157.5	2			II	HARM
			WEIS				1220.8	1233.9	3				IIIG
			WEIS				1240.9	1242.3	3				IIIG
			WEIS				1524.2	1527.3	3				IIIG
	1553	2350	HARV				1553	1700	2				IC
			HARV	1557	2350	1							IN
			HARV	1613		1	1613		1				IIIGG
			HARV				1632	1743	2	1749	2118	2	IIIN
			HARV				1700	2350	3				IC
			HARV				1707	1711	2	1707	1711	2	IIIGG,V
			HARV				1740	1741	2				IIIG
			HARV				1751	1800	2	1751	1800	2	IIIGG
			HARV				1802	2337	3	1802	2208	2	IIIS
			HARV	2011	2017	2							IIIGG
			CULG				2045	2400	1				N,RSDP
	2045	2400	CULG				2045	2400	2				IS,C,DC
			CULG				2045	2400					IIIS,W
			CULG				2045	2322	1				IIIN
			CULG	2048	2400	1							IN,C
			CULG				2115.5	2309.5	2				IIIN
			CULG				2326	2338.5	2				IIIS
			HARV	2338	2350	2	2338	2350	2			IV	
			HARV	2338	2350	2	2338	2350	3				IIIGG
			CULG	2338.5	2356	2	2338.5	2356	3	2338.5	2356	3	IIIS
			CULG				2356	2400	2	2356	2400	2	IIIS
31			CULG	0000	0416.5	1							IN,C
	0000	0745	CULG				0000	0416.5	2				IS,C
			CULG				0006	0416.5	1				IIIS
			CULG				0008	0156	2				IIIN
			CULG				0149	0150	3	0149	0150	3	IIIG
			CULG				0151	0403	1				N,RSDP
			CULG				0156	0413.5	2				IIIS
			CULG				0533	0730	1				IS,C
			CULG	0533	0745	1							IN,C
			CULG				0537	0651.5	1				RSDP,N
			CULG				0644	0745	1				IIIS
			CULG				0651	0719.5	2				IIIN
	0731	1441	WEIS				0736	1440	2				IIIS
			WEIS				0736	1439	2				IS
			WEIS				1028.6	1029.4	3				IIIG
			WEIS				1150.1	1150.4	3				IIIG
			WEIS				1318.9	1331.0	3				IIIGG
			WEIS				1326	1438	2				CONT
			WEIS				1328	1340	3			II	HARM
			WEIS				1329.1	1332.3	2				DCIM
	1407	2345	HARV				1407	2345	2				IC

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JANUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
	1982 MONTH 01												
31			HARV				1454	2037	2	1514	2037	2	IIIS
			HARV				1651	1652	2	1651	1652	2	IIIG
			HARV	1734	2345	1							IN
			HARV				2038	2042	2	2038	2042	2	IIIGG
			HARV				2038	2345	2	2038	2139	2	IIIS
			CULG	2045.5	2400	1	2045.5	2400	1				IS
	2045	2400	CULG				2045.5	2400	1				IIIS
			CULG				2051.5	2347.5	2	2054	2351.5	1	IIIN
			HARV				2052	2120	2	2052	2120	2	IIIGG
			CULG				2106	2344.5	1				RSDP,N
			HARV	2140	2141	2	2140	2141	2				IIIG
			HARV				2207	2214	2	2208	2210	2	IIIGG
			HARV	2226	2227	1	2226	2227	2				IIIGG

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES

(Neutron Monitors)

JANUARY 1982

Jan 1982	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100)
1	3993	6544.0	6175.2	5614.8		3540.1	
2	3996	6528.2	6209.5	5605.9		3543.4	
3	4013	6540.4	6178.9	5594.7		3533.5	
4	4014	6561.0	6162.7	5602.0		3529.1	
5	4056	6632.3	6246.6	5661.2		3555.1	
6	4081	6699.0	6299.8	5722.7		3579.6	
7	4085	6706.3	6309.6	5738.1		3578.3	
8	4119	6735.9	6384.3	5783.5		3585.3	
9	4158	6802.3	6434.4	5819.0		3595.9	
10	4154	6816.8	6464.3	5824.5		3590.2	
11	4189	6880.9	6488.7	5846.7		3600.2	
12	4238	6955.8	6516.8	5858.5		3603.6	
13	4187	6864.9	6466.0	5816.6		3598.6	
14	4192	6827.7	6434.8	5799.1		3590.1	
15	4227	6901.2	6476.8	5854.5		3591.7	
16	4236	6936.3	6525.5	5888.3		3607.5	
17	4222	6909.4	6544.3	5868.3		3610.8	
18	4194	6873.8	6480.0	5850.6		3598.8	
19	4208	6896.0	6489.8	5851.4		3605.7	
20	4239	6953.9	6482.8	5842.2		3604.2	
21	4159	6834.6	6428.3	5783.8		3570.7	
22	4097	6708.0	6369.9	5751.0		3568.5	
23	4126	6776.7	6373.9	5783.5		3574.1	
24	4154	6804.2	6432.7	5805.4		3586.3	
25	4159	6801.6	6430.7	5817.1		3600.1	
26	4173	6823.3	6470.6	5845.5		3603.6	
27	4134	6768.9	6430.5	5827.3		3598.8	
28	4117	6746.1	6348.7	5746.5		3568.4	
29	4157	6800.7	6372.0	5755.7		3567.7	
30	4176	6825.6	6417.4	5814.9		3576.1	
31	3994	6542.0	6199.2	5568.7		3527.7	
MEAN	4137	6774.1	6388.6	5772.3		3580.1	

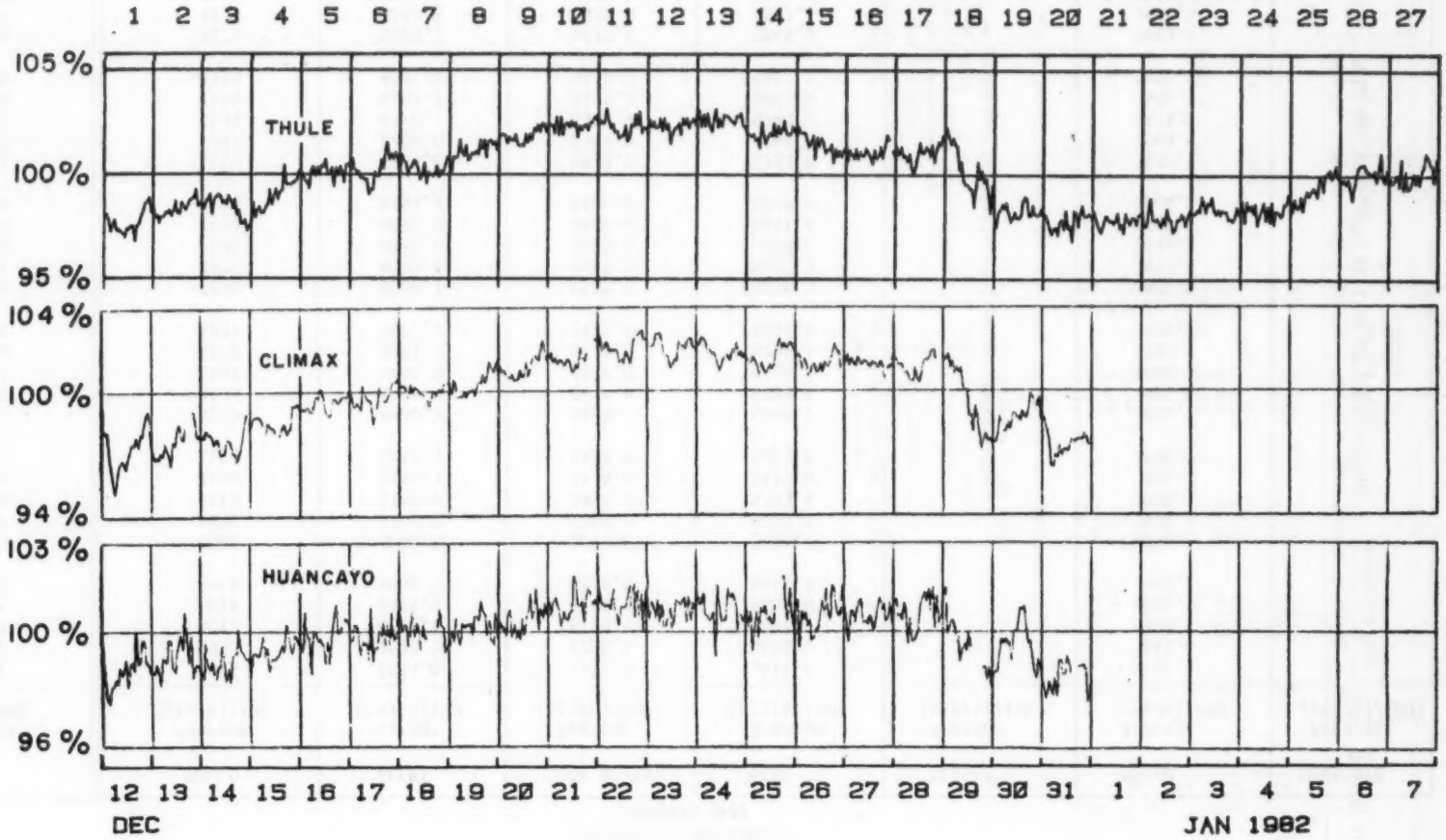
Data not available at time of publication.

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

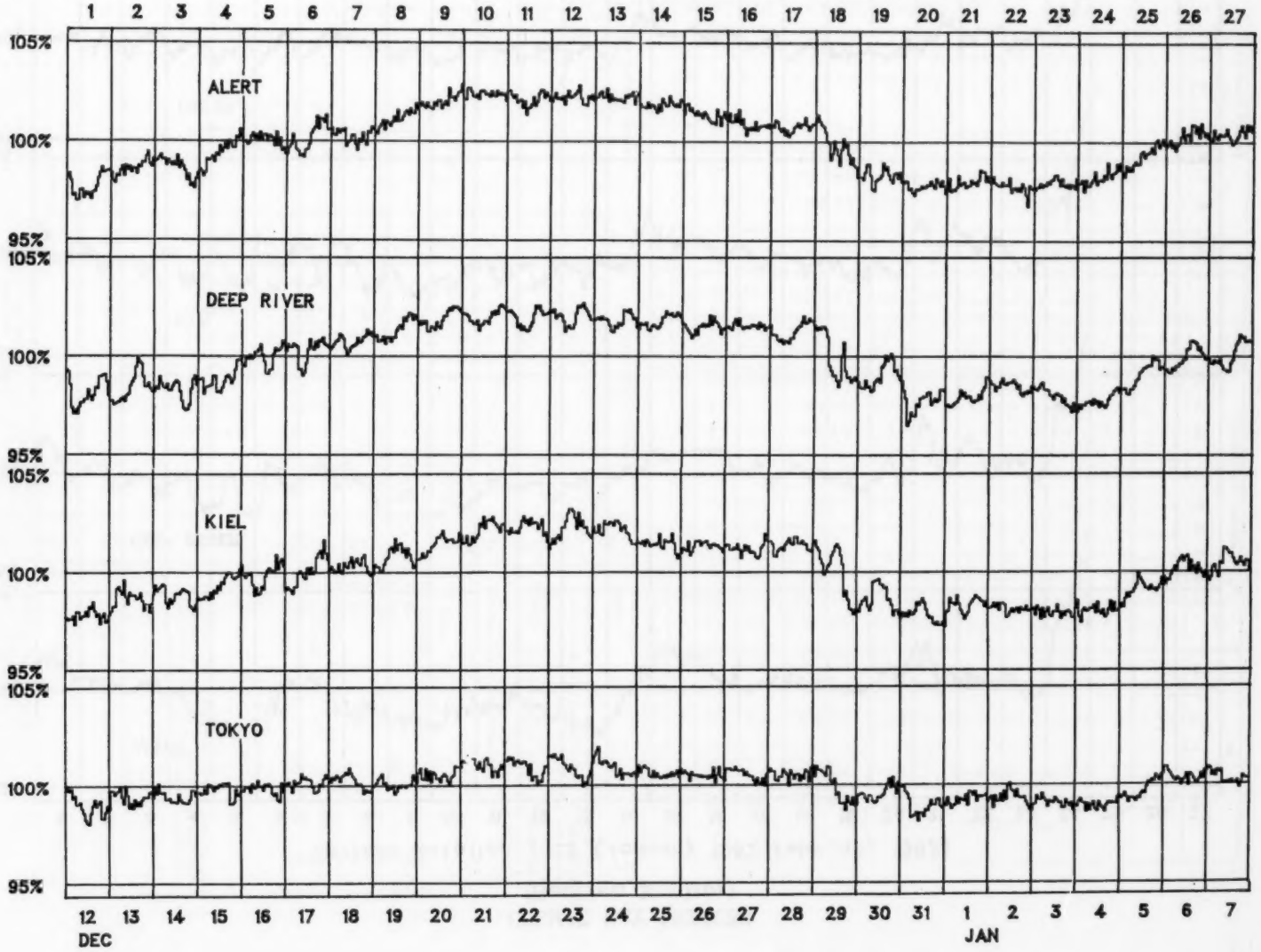
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2028 (December 1981–January 1982)



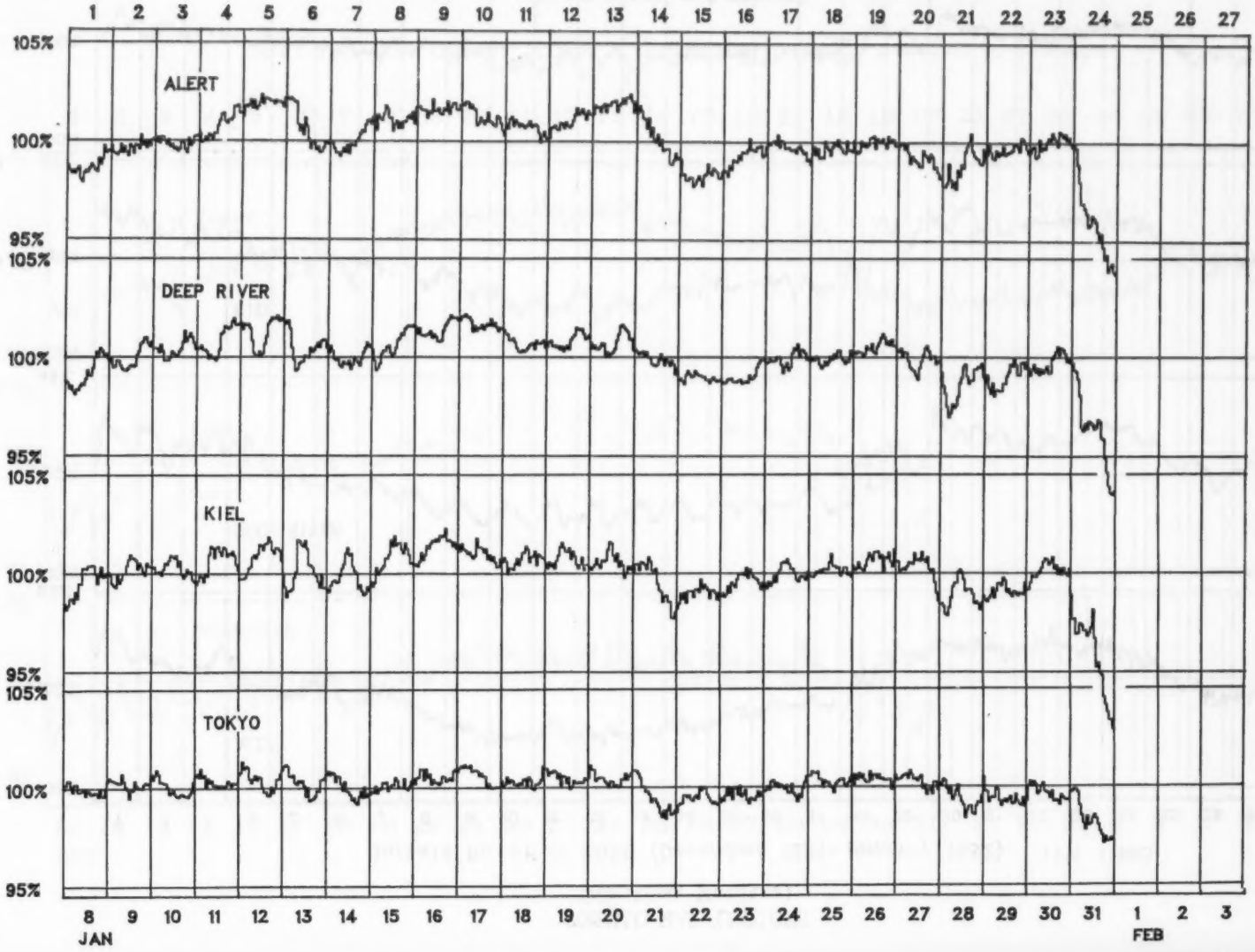
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2028 (December 1981–January 1982)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2029 (January 1982–February 1982)



GEOMAGNETIC ACTIVITY INDICES

JANUARY 1982

Day	Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km									Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1		2	2-	2-	2-	2+	4	2-	1	16	9	0.5	1+	1	2-	2-	2	4-	2-	2-	16	16	19	12	23
2		2-	2-	2-	2-	2	3+	3	2+	17+	9	0.5	1+	1+	2	2	2+	3+	3	2	18	16	23	16	24
3	D5	3	3	2+	3-	2	4+	5-	4	26	20	1.0	2+	2+	2+	3-	3-	4+	4	4-	33	38	31	16	53
4		4	2+	1+	2	2+	3	2+	3	20+	12	0.7	3	1+	1+	2	3-	3-	2	3-	18	24	21	21	25
5	Q7	2+	2-	2-	2	1-	0+	1-	0	9+	4	0.2	2	1+	1+	2	1-	0+	0+	0+	8	8	12	15	5 C
6		2+	3-	3+	2+	2	2	3	2-	19+	10	0.6	2-	2	3-	2+	3-	2	4	2+	23	19	23	20	22
7		2+	3-	3-	2	3	3	3	3-	21+	12	0.7	2-	2+	3+	2	3+	3	3	3	26	21	41	31	31
8		3+	3-	2	2-	1+	2+	3-	2-	18-	9	0.5	3	2+	2	2-	2-	2	3-	2-	17	22	15	19	17
9	Q5	2-	2-	0+	1	1-	1-	1-	1+	8	4	0.1	2-	1	1-	1	1+	1+	1+	1+	8	10	7	9	8 CC
10	Q6	1+	0+	0+	0+	0	0+	2-	2+	7-	4	0.1	1	0+	0+	1-	0+	0+	2-	2-	6	11	9	8	11 CC
11	Q8	2+	3-	1	1-	1	1	2-	0	10+	5	0.2	2-	2-	1	1+	1	1	1+	0	8	9	10	10	9 CC
12	Q2	2	1+	0+	1-	0	0	0	1-	5	2	0.0	1+	1-	0+	0+	0	0	0	1-	3	5	7	8	5 CC
13	Q3	0	1+	1+	1	1-	1+	1-	1-	7	4	0.1	1-	2	2	1+	1	2-	1+	1	10	7	20	16	12 C
14	Q1	0	0	0+	1+	1-	1-	1-	2-	5+	3	0.0	0+	0	0+	1+	1	1	1+	2+	7	6	17	8	15 C
15		2+	4	2	2+	2+	2+	3-	3-	21-	12	0.7	2+	3	2+	3-	3-	2+	3	3-	23	21	33	30	25
16		1+	2	4-	2+	3+	3+	4+	4-	24	17	0.9	2-	2	3	2+	3+	3+	4	3+	30	35	35	22	48
17		4-	3-	2	3-	2+	2+	1+	1	18	10	0.6	3	2	2	3	3	2+	1+	2-	20	18	23	23	19
18		2-	2+	1+	1+	1	2-	4+	5-	18+	13	0.8	2-	1+	1-	1+	1+	2-	4-	4	20	21	25	13	33
19	Q4	2	0+	0	1-	1+	1-	1-	1-	6+	3	0.1	2-	1-	0+	1-	2-	1	0+	1+	7	6	11	8	9 C
20	Q9	2+	2+	2-	1	1-	1-	2	2-	12+	6	0.3	2-	2	1+	1+	1	1-	2	1+	10	10	13	12	10 C
21		1	2+	3-	3+	3	4	3	3-	22	14	0.8	1+	2	3-	3	3	5	3	3	32	28	40	29	40
22	D2	4-	5-	4	4	3+	4	4-	4+	32-	27	1.2	3+	4-	3+	4	3+	4+	3	4	46	50	42	43	50
23	D4	4-	4+	3	3+	4	3	4	4-	29	22	1.1	3+	4-	3-	3+	4-	3	4-	3+	39	40	42	36	46
24		4-	4-	3+	3+	4-	3+	3+	4	28+	21	1.1	3	3	3	3	4-	3+	3	4-	36	44	32	31	45
25		3-	3-	2+	2-	3-	2	1+	2	17+	9	0.5	2+	2	2	2-	3-	2	1+	2-	16	17	17	17	16
26	Q0A	2-	1	1-	1	2-	1	3	3	13	7	0.4	2-	1-	1+	1	2-	1+	3-	3-	13	16	18	14	21
27		3-	3	2+	2+	3+	2	2-	4	21+	13	0.7	3-	3	2+	2	3+	2	2-	4-	24	26	26	20	33
28		3	4+	4-	4+	3	3-	1+	2-	24	17	0.9	3+	4-	3+	4	3+	3	2-	2	34	25	41	48	17
29		1-	2-	1	1	2	4-	4	3-	17-	11	0.6	1+	1	1	1-	2	4+	4+	3-	24	23	29	10	42
30	D3	5+	5+	4	4	3+	3	2+	2-	29	27	1.2	5-	4+	3+	4	3	3	2+	2	40	44	57	75	26
31	D1	3+	5-	4-	5	6-	5-	4	3-	34-	34	1.3	3-	3+	3+	4	5+	5	4+	2+	57	57	63	58	62
									Mean	12	0.59										21.7	22.4	25.9	24.2	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	2-	1	2-	1+	2+	4-	2-	1+	16	1+	1+	2-	2	2	4-	2	2	16
2	1+	1+	2-	2+	3-	4-	3	2+	19	2-	1+	2+	2-	2+	3-	3	2	17
3	2+	2+	2	3-	3-	4	4	4-	32	2	2+	3-	3-	3-	4+	4	4	35
4	3+	1+	1	2-	3-	3	2+	3-	20	3	1+	1+	2+	3-	3-	2-	2+	17
5	1+	1	1+	2	1-	0+	0+	0	6	2+	2-	2-	2	1-	0	0+	0+	8
6	2-	2+	3-	2+	3-	2	3	1+	19	2	2	3-	2	2+	2+	5-	3-	26
7	2-	2+	3	2	3	3	3	2+	22	2	2+	4	2+	3+	3	3+	3+	31
8	3-	2	2-	2-	1+	2	3-	1+	14	3	3-	3-	2	2	2	3-	2-	19
9	1+	1	0+	1+	1	1+	1+	1	7	2	1-	1	1-	1+	1+	2-	1+	9
10	1-	0	0	0+	0	0	2-	2	5	1+	1	0+	1	0+	1-	1+	2-	6
11	2-	2	1	1	1	1+	1+	0	8	1+	1+	1	1+	1	1	2-	0	8
12	1+	1-	1-	1-	0	0	0	0+	4	1+	1-	0	0	0	0	0	1-	2
13	0+	2-	2-	1	1-	2-	1+	1-	8	1	2+	2+	2-	1+	2	1+	1+	12
14	0+	0	0	1+	1-	1	1	2-	5	1-	0+	1	2-	1+	1+	2-	3-	10
15	2-	3	2+	3-	3-	2+	3	3-	22	3	3	3-	3-	3-	3-	3	3-	24
16	2-	2-	3+	2+	3+	3+	4-	3	29	2	2	3-	2+	3	3	4+	4-	31
17	3	2-	2+	3	3	2+	1+	1+	19	3	2+	2	3	3-	3-	1+	2+	21
18	1+	2-	1-	1+	2-	2-	4	4	21	2	1+	1	1+	1+	2-	3+	4	20
19	1+	0+	0	0+	2-	1	0+	1-	5	2	1	1	1	2-	1	0+	2-	8
20	2-	2	1+	1+	1-	0+	2-	1+	9	2	2	2-	1+	1	1-	2	2-	11
21	1-	2-	2+	3	3	4+	3	3-	26	1+	2	3-	3	3+	5+	3+	4-	39
22	3	4-	4-	4	3+	4+	3+	4-	45	4-	4-	3+	4	3+	4	3	5-	47
23	3-	4-	3-	3+	4-	3	4-	4-	35	4	4-	3	3+	4-	3+	4-	3+	42
24	3-	3+	3	3	4-	3+	3	4-	35	3	3	3	3	4-	3	3+	4	37
25	2	2+	2	1+	3-	2+	1	2-	15	3-	1+	2-	2	3	2	2-	2	16
26	1+	0+	1-	1+	2-	1+	3-	3-	12	2-	1+	2-	1	2-	1+	3-	3-	14
27	2+	3	2+	2+	3+	2	1+	4-	24	3-	3-	2+	2-	3+	2+	2	4-	24
28	3	4-	3+	4	3+	3	1+	1+	31	4-	4-	3+	4+	3	3	2	2+	36
29	0+	1+	1	1-	2-	4	4+	3-	21	2-	1-	1	1-	2	5-	4+	3	27
30	4+	4+	3	4+	3	3	2	2	39	5-	4+	3+	4-	3	3-	2+	2+	40
31	3-	4-	3	4	5	5-	4-	3-	51	3-	3+	3+	4	6-	5+	5	2+	64
								Mean	20.1									23.1

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M	
21 Feb 1979			66	102
10 Mar			54	101
25 Apr	109		27	148
26 Apr			103	15
13 Aug			53	108
20 Aug			33	100
29 Aug			59	111
18 Sep			100	63
25 Jul 1980			13	100
19 Dec	118	123	63	178
06 Feb 1981			24	116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

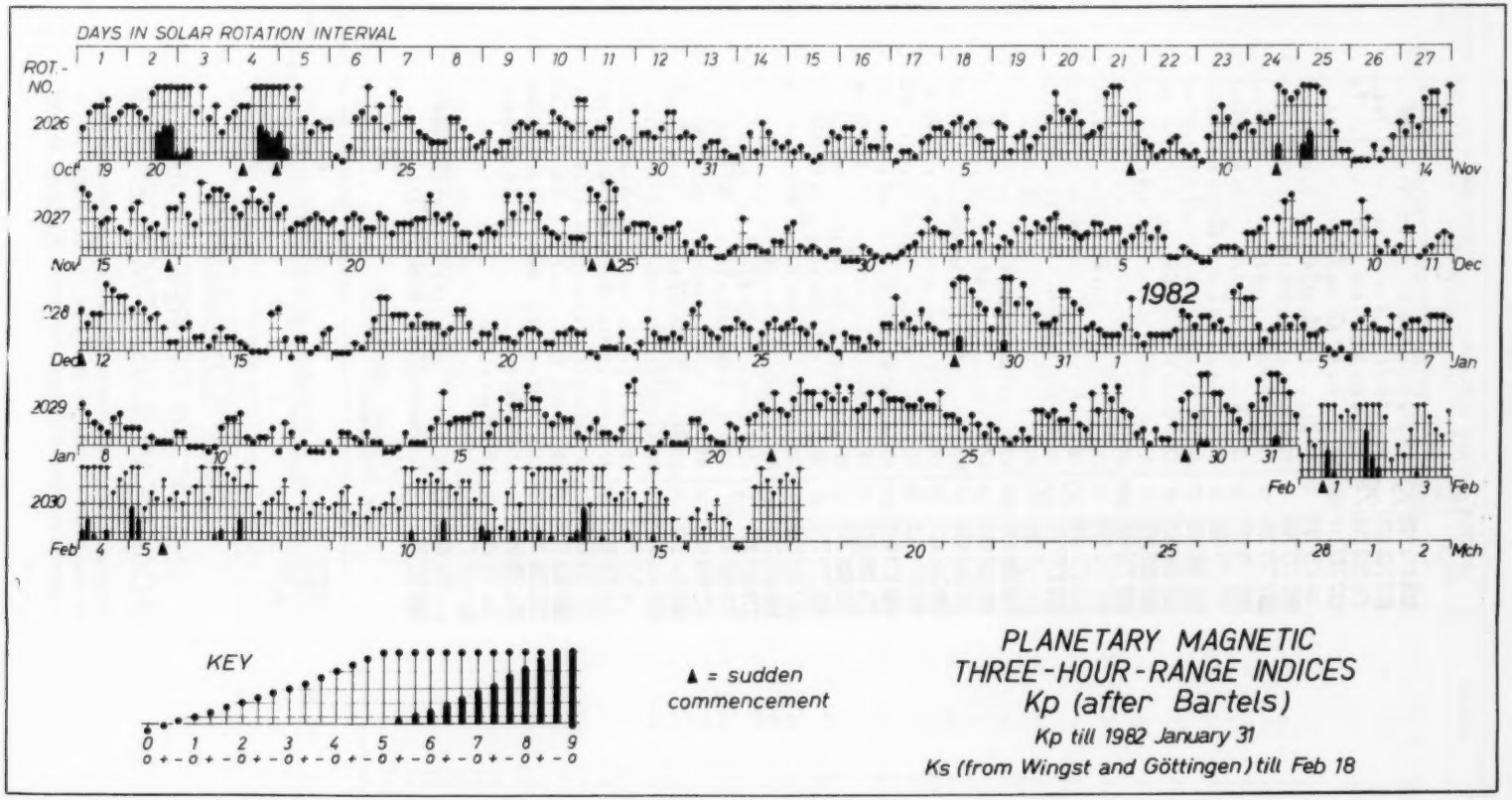
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp>30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

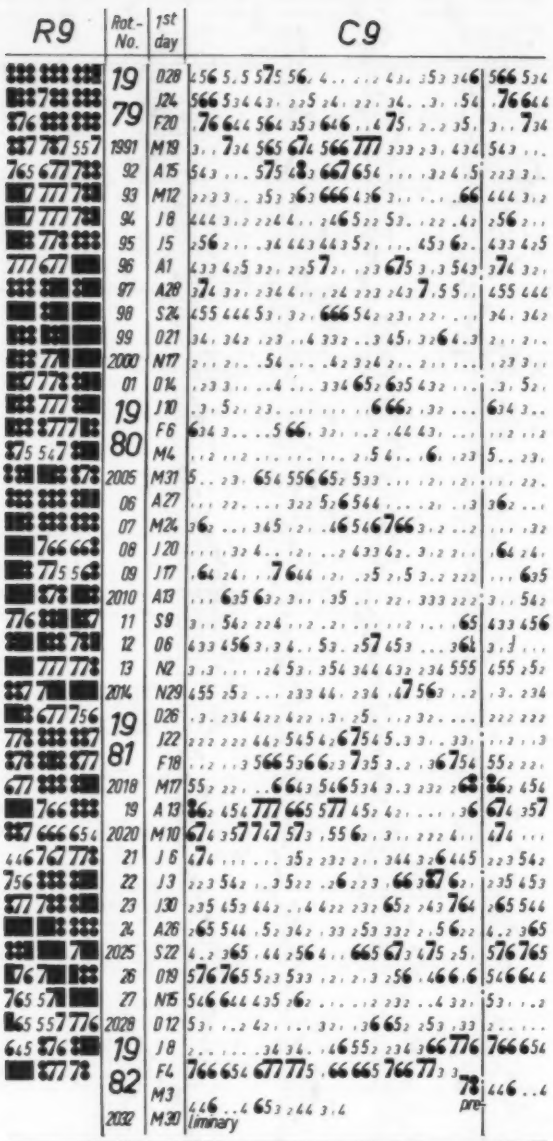
Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

DAY	1981 FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 JAN
1	14	28	23	16	7	17	18	5	9	7	6	9
2	22	25	10	7	7	22	15	18	22	5	9	9
3	13	8	14	5	16	9	18	9	36	8	8	20
4	9	12	11	4	5	9	11	11	17	6	10	12
5	25	81	4	4	6	12	15	17	7	11	9	4
6	48	11	10	5	14	19	14	8	6	9	4	10
7	20	20	9	5	50	14	10	5	32	19	3	12
8	14	10	11	11	16	8	4	10	25	27	15	9
9	22	4	8	39	4	6	7	11	21	4	10	4
10	3	8	8	32	4	4	16	9	27	13	9	4
11	10	7	39	61	6	13	15	21	46	31	6	5
12	11	11	96	13	4	20	9	10	12	39	23	2
13	7	28	121	10	5	9	9	12	17	5	12	4
14	3	45	27	18	4	7	8	10	73	27	6	3
15	10	19	8	54	11	4	13	10	20	20	6	12
16	10	14	13	59	21	8	8	7	8	17	4	17
17	6	18	19	13	10	29	25	4	18	32	7	10
18	6	19	14	57	10	10	23	18	6	26	14	13
19	6	10	45	18	10	9	10	38	23	14	10	3
20	9	9	53	43	10	12	8	9	67	13	6	6
21	5	8	41	12	7	6	14	7	33	15	6	14
22	6	4	33	6	5	24	13	13	72	11	3	27
23	12	4	31	19	5	37	56	4	27	20	6	22
24	20	4	22	18	13	13	28	7	18	9	10	21
25	24	36	19	33	15	134	16	13	18	27	8	9
26	29	28	62	8	14	78	8	32	10	9	6	7
27	21	14	43	6	10	24	25	21	10	4	6	13
28	11	12	13	12	9	8	18	6	19	6	12	17
29		18	19	6	33	5	18	14	12	4	32	11
30		16	7	6	14	9	17	15	12	1	30	27
31		26		8		12	15		4		18	34
MEAN	14	18	23	20	12	19	15	12	23	15	10	12

GEOMAGNETIC ACTIVITY INDICES





Symbol			2	3	4	5	6	7	8	9
$\bar{R}$ =	0	1-15	16-30	31-45	46-60	61-80	81-100	101-130	131-170	171...
R9,C9 =	0	1	2	3	4	5	6	7	8	9
Cp =	a0-a1	a2-a3	a4-a5	a6-a7	a8-a9	1.0-1.1	1.2-1.4	1.5-1.8	1.9	2.0-2.5

DAILY GEOMAGNETIC CHARACTER FIGURES C9 AND 3-DAY MEAN SUNSPOT NUMBERS R9

For explanation and previous years see J. Bartels, Abhandlungen der Akademie der Wissenschaften zu Göttingen, Beitrage zum I.G.J., Heft 3 (1958) (may be requested from Institut für Geophysik, Postfach 876, 34 Göttingen, Germany).

PRINCIPAL MAGNETIC STORMS

JANUARY 1982

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HYB	07.6N	02	0500	..	..	..	..	02(5,6)	4	4	120	23	04	04
HYB	07.6N	06	0000	..	..	..	..	06(7)	4	3	81	32	08	08
JAI	17.3N	13	0412	SC	- .5	16	- 4		-	3	55	16	13	23
SHL	14.7N	13	0412	..	..	..	3		-	2	50	12	13	23
UJJ	13.5N	13	0412	SC	- .4	21	- 6		-	2	64	17	13	23
HYB	07.6N	13	0410	SC	- .4	20	- 1	13(2,3)	3	3	76	20	13	22
ANN	01.5N	13	0412	SC	- 1	30	12		-	3	89	22	13	23
ABG	9.5N	13	0412	SC	- .6	17	- 7	13(2,3,4)	3	3	67	18	13	23
TRD	01.1S	13	0412	SC	- .3	28	26		-	3	114	71	13	23
HYB	07.6N	14	1100	..	..	..	..	14(4) 15(3,4,6,7,8)	3	5	99	29	15	22
HYB	07.6N	16	0200	..	..	..	..	16(6)	5	3	133	36	17	19
FRD	49.6N	20	----	..	..	..	..	21(6) 22(1,2,4) 23(2,5) 24(2,5)	4	16	110	32	25	--
GNA	43.2S	20	19--	..	..	..	..	21(6)	5	17	90	100	25	15
COL	64.6N	21	07--	..	..	..	..	22(4)	7	176	1300	510	24	24
JAI	17.3N	21	0700	..	..	..	..		-	4	102	39	24	23
SHL	14.7N	21	0700	..	..	..	..		-	5	98	31	24	23
UJJ	13.5N	21	0700	..	..	..	..		-	4	115	49	24	23
HYB	07.6N	21	0200	..	..	..	..	21(6)	6	4	144	36	24	23
GUA	04.0N	21	0215	..	..	..	..	21(6)	5	10	140	40	22	18
ANN	01.5N	21	0700	..	..	..	..		-	6	173	64	24	23
ABG	9.5N	21	0700	..	..	..	..	21(6)	6	4	132	47	24	23
TRD	01.1S	21	0700	..	..	..	..		-	--	--	--	24	23
HER	33.7S	21	07--	..	..	..	..	21(6) 22(8)	5	24	117	83	23	06
KGL	56.5S	21	1517	SC	4	64	23	22(6,8)	5	--	--	--	25	06
HYB	07.6N	26	1700	..	..	..	..	28(4)	5	4	144	54	28	23
HON	21.1N	28	0300	SC	1	14	8	28(1,3,4)	3	4	85	29	29	01
GUA	04.0N	28	0140	..	..	..	..	28(4)	5	--	200	30	28	19
PMG	18.6S	28	02--	..	..	..	..	28(4) 30(4) 31(5)	5	--	180	--	31	24
COL	64.6N	29	1744	SC*	36	136	47	02(3,4) 04(5)	7	366	2350	500	07	20
COL	64.6N	29	13--	..	..	..	..	01(4,5,7)	7	--	--	--	--	--
SIT	60.0N	29	1745	SC*	8	* -50	-11	31(4)	7	--	--	440	31	22
FRD	49.6N	29	1744	SC	2	-25	5	01(5,7) 02(4,5)	6	36	193	114	07	--
HON	21.1N	29	1745	SC	1	20	8	29(6) 30(1)	4	6	104	35	31	23
HYB	07.6N	29	1300	..	..	..	..	29(6) 30(4)	5	5	107	21	30	20
GUA	04.0N	29	1617	..	..	..	..	30(1)	6	--	210	60	30	17
HER	33.7S	29	1745	SC	- 4	-31	-24	31(5)	5	53	128	138	31	23
GNA	43.2S	29	13--	..	..	..	..	30(1) 31(5,6,7)	5	27	240	150	31	21
KGL	56.5S	29	1766	SC	- 5	-60	-29	30(1,2)	5	--	--	--	30	18
GUA	04.0N	30	2320	..	..	..	..	31(5)	5	--	230	70	31	23
JAI	17.3N	31	0100	..	..	..	..		-	5	208	36	31	23
SHL	14.7N	31	0100	..	..	..	..		-	4	201	46	31	23
UJJ	13.5N	31	0100	..	..	..	..		-	5	219	35	31	23
HYB	07.6N	31	0102	SC	- .3	7	0	31(5,6)	6	4	243	30	01	03
ANN	01.5N	31	0100	..	..	..	..		-	4	261	65	31	23
ABG	9.5N	31	0100	..	..	..	..	31(4)	6	4	229	29	31	23
TRD	01.1S	31	0100	..	..	..	..		-	4	335	151	31	23
KGL	56.5S	31	01--	..	..	..	..	31(5,6)	7	--	--	--	31	22

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HYDERABAD
JAIPUR KERGUELEN PORT MORESBY SHILLONG SITKA TRIVANDRUM UJJAIN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JANUARY 1982

PRELIMINARY REPORT ON RAPID VARIATIONS

Sudden Commencements (ssc)

21	15	17	A: WNG DOU COI; B: WIT CZT KGL; C: NGK HAD (si: B: TOL - bps: A: MPO)
21	17	31	A: MPO; B: AMS CZT DUM; C: NGK (si: A: WNG VIC; B: TOL)
29	17	45	A: WNG WIT DOU VIC COI MPO AMS; B: HAD EBR FRD CZT KGL; C: NGK DUM (si: B: TOL?)
31	01	02	A: LNP; B: DUM; C: KAK HTY KNY (si: C: MPO)

Solar Flare Effects (sfe)

1	00	54 - 01	24	MMB KAK KNY
2	06	09 - 06	40	MMB HTY KNY
9	11	24 - 11	40	WNG
13	01	26 - 02	30	MMB HTY
13	11	22 - 11	30	MPO
21	10	21 - 10	57	NGK
22	04	50 - 04	52	LNP
22	10	31 - 10	51	NGK
29	03	13 - 03	16	LNP
30	00	51 - 00	53	LNP
30	06	03 - 06	05	LNP

RADIO PROPAGATION QUALITY INDICES

JANUARY 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.7	5.1	1.5	5.1	3.5
2	5.1	4.5	0.0	7.8	6.6
3	5.5	4.8	2.9	6.4	6.0
4	4.9	5.1	1.6	5.0	4.4
5	4.6	4.8	1.6	4.6	3.5
6	4.1	5.5	0.0	5.3	4.7
7	5.1	5.5	5.6	6.0	4.7
8	4.8	4.9	5.2	7.4	6.5
9	4.2	5.6	3.6	5.7	5.6
10	4.1	5.0	5.2	6.4	7.5
11	5.2	5.0	5.3	3.4	2.5
12	4.2	5.4	5.7	3.8	2.9
13	4.9	5.7	1.0	4.5	3.3
14	4.5	4.0	4.4	5.9	4.7
15	4.6	4.3	5.3	6.3	5.7
16	4.6	4.0	2.1	5.9	5.3
17	4.3	5.7	0.5	5.5	4.7
18	5.3	3.8	0.0	6.1	4.4
19	5.6	4.5	1.1	5.8	3.4
20	4.7	4.9	4.1	5.5	4.0
21	6.1	5.9	6.6	7.2	6.3
22	6.4	5.3	3.6	6.8	5.3
23	6.8	5.7	3.1	5.7	4.6
24	7.1	5.1	5.1	6.1	4.7
25	7.4	4.5	2.0	5.4	3.7
26	6.6	5.6	2.4	6.7	5.9
27	5.7	6.3	5.6	6.0	6.6
28	6.7	7.6	4.7	6.1	6.9
29	7.4	6.6	5.5	7.0	7.2
30	7.3	6.2	5.8	6.5	5.6
31	6.5	4.5	5.8	5.7	5.0
MEAN	5.5	5.2	3.4	5.9	5.0

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

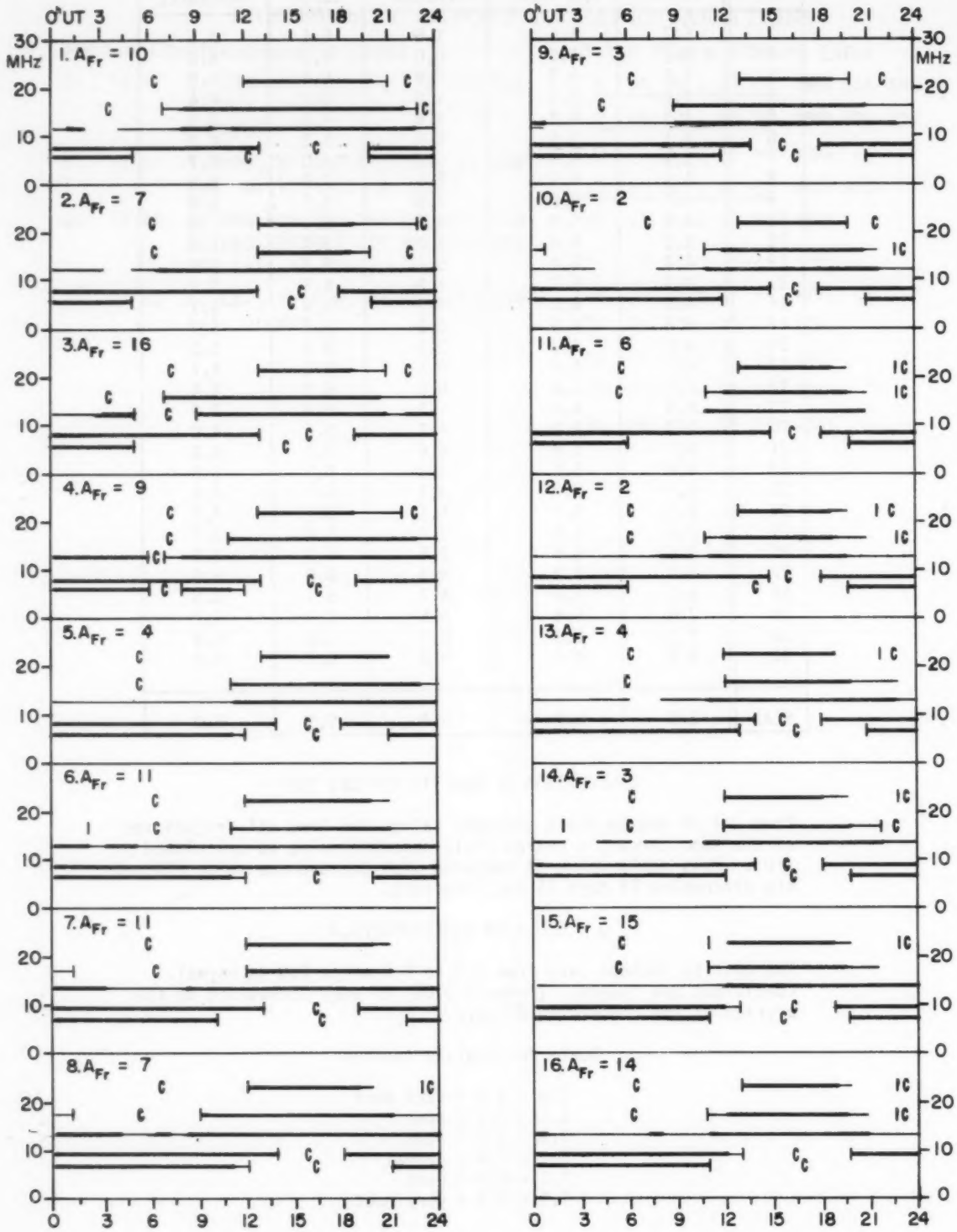
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

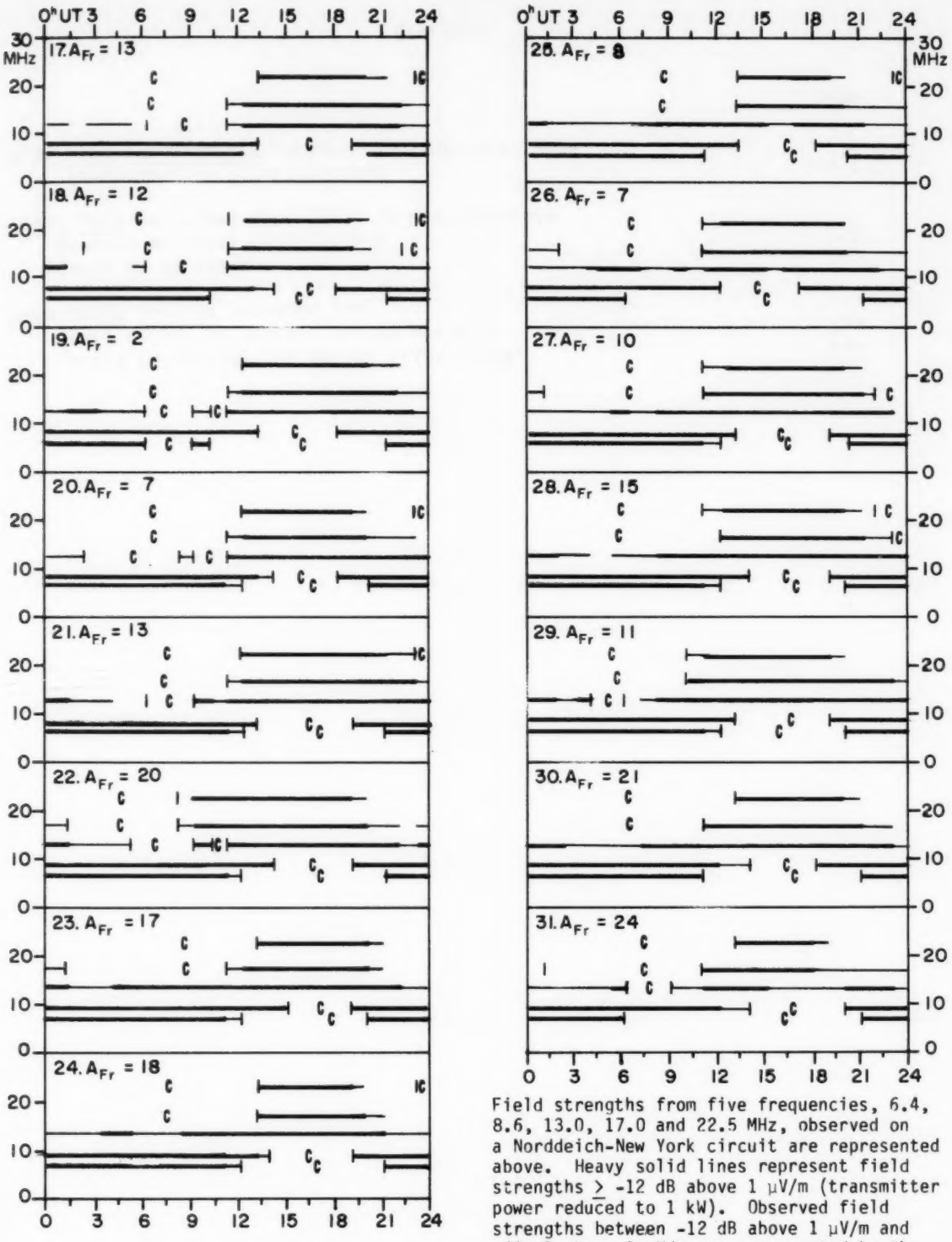
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JANUARY 1982



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths $\geq$ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μV/m and -40 dB above 1 μV/m are represented by the fine line.

LATE DATA

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SOLAR WIND

Interplanetary Scintillations

DECEMBER 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
811201	335	1	220	34	244	38	2	3C446	87	4	1.03	-16	-1.03	1715.55
	335	3	298	15	279	9	2	3C459	102	5	1.10	-14	-0.49	1715.61
	335	15	347	14	339	13	3	3C273	62	0	0.88	28	1.46	1715.59
	335	16	322	11	318	11	2	3C283	46	-17	0.72	42	1.49	1715.58
	335	19	337	10	326	10	3	3C298	43	16	0.68	46	1.68	1715.58
811202	336	3	398	9	373	17	3	3C459	101	5	1.10	-14	-0.66	1715.71
	336	5	416	55	433	46	2	3C48	140	7	1.24	-6	0.60	1715.68
	336	14	300	17	280	41	2	3C237	99	-2	1.09	16	1.75	1715.59
	336	15	307	15	319	22	2	3C273	63	0	0.89	27	1.36	1715.61
	336	16	375	12	377	18	3	3C283	47	-17	0.73	41	1.71	1715.64
811203	337	3	337	13	350	20	2	3C459	100	5	1.09	-14	-0.60	1715.72
	337	5	389	13	412	22	2	3C48	139	7	1.24	-6	0.67	1715.70
	337	15	348	11	331	24	2	3C273	64	0	0.90	26	1.40	1715.67
	337	16	399	23	399	27	2	3C283	48	-16	0.74	40	1.78	1715.68
	337	17	389	13	384	13	2	3C295	81	14	1.00	10	0.75	1715.71
	337	18	350	7	318	8	3	3C298	45	15	0.71	44	1.73	1715.66
811204	338	1	311	11	345	24	2	3C446	84	4	1.01	-16	-1.13	1715.75
	338	3	333	24	351	58	2	3C459	99	5	1.09	-15	-0.66	1715.75
	338	5	440	31	388	38	2	3C48	138	6	1.24	-7	0.47	1715.76
	338	15	640	111	532	22	2	3C273	65	0	0.91	26	1.64	1715.79
	338	16	551	46	561	23	2	3C283	49	-16	0.75	39	2.08	1715.75
	338	19	324	28	336	91	3	3C298	46	14	0.72	43	1.61	1715.69
811205	339	1	280	13	278	12	2	3C446	83	4	1.01	-16	-1.19	1715.77
	339	3	398	23	386	39	2	3C459	98	4	1.08	-15	-0.81	1715.83
	339	5	396	29	621	120	2	3C48	137	6	1.24	-7	0.53	1715.78
	339	14	264	75	371	20	2	3C237	102	-3	1.10	16	1.89	1715.66
	339	16	454	12	437	25	3	3C283	50	-16	0.77	37	1.81	1715.77
	339	18	332	16	317	23	4	3C298	47	13	0.73	41	1.59	1715.73
811206	340	3	279	20	269	15	2	3C459	97	4	1.08	-15	-0.68	1715.79
	340	4	417	51	396	35	2	3C48	136	6	1.23	-7	0.46	1715.83
	340	15	285	17	273	12	2	3C273	67	0	0.92	24	1.27	1715.74
	340	16	432	12	411	13	3	3C283	51	-15	0.78	36	1.75	1715.80
	340	18	275	7	270	20	4	3C298	48	13	0.74	40	1.26	1715.73
811207	341	5	268	10	270	11	2	3C48	135	6	1.23	-6	1.09	1715.75
	341	15	299	39	275	23	2	3C273	68	0	0.93	22	1.20	1715.79
	341	16	361	25	324	10	3	3C283	52	-15	0.79	37	1.66	1715.82
	341	18	488	12	500	40	3	3C298	49	12	0.75	41	2.10	1715.85
	341	20	269	31	248	72	2	3C368	37	50	0.60	-16	-4.04	1715.96
811208	342	4	284	32	344	24	2	3C48	135	6	1.23	-8	0.87	1715.81
	342	14	395	64	403	56	2	3C237	105	-3	1.12	16	1.73	1715.86
	342	15	401	9	380	10	3	3C273	69	-1	0.93	21	1.27	1715.88
	342	16	380	8	385	8	3	3C283	53	-14	0.80	35	1.62	1715.86
	342	17	371	11	344	42	2	3C295	84	13	1.01	10	0.82	1715.89
	342	18	402	16	407	9	4	3C298	50	12	0.77	40	1.89	1715.87
811209	343	0	302	16	279	20	2	3C409	66	20	0.91	-15	-1.69	1715.95
	343	1	354	38	362	32	2	3C446	79	3	0.99	-16	-1.32	1715.97
	343	2	382	25	381	20	3	3C459	94	4	1.06	-15	-0.86	1715.97
	343	4	376	12	372	12	2	3C48	134	6	1.23	-8	0.51	1715.92
	343	12	463	16	460	16	2	3C222	112	-4	1.15	15	1.66	1715.92
	343	14	423	15	405	18	2	3C237	106	-3	1.12	15	1.66	1715.91
	343	15	541	33	475	18	2	3C273	70	-1	0.94	20	1.26	1715.96
	343	16	394	10	390	27	3	3C283	54	-14	0.81	34	1.64	1715.90
	343	16	336	69	278	74	2	3C295	84	13	1.01	11	0.90	1715.90
	343	18	328	10	343	10	4	3C298	51	11	0.78	38	1.60	1715.87
811210	344	0	341	17	321	30	2	3C409	65	20	0.91	-15	-1.67	1716.01
	344	1	310	47	319	43	2	3C446	78	3	0.98	-16	-1.38	1715.98
	344	2	306	7	314	7	3	3C459	93	4	1.06	-15	-0.85	1715.96
	344	4	355	10	368	23	3	3C48	133	6	1.22	-7	0.59	1715.94
	344	12	393	55	373	68	2	3C216	127	4	1.20	10	1.71	1715.93
	344	13	353	12	376	20	2	3C237	107	-3	1.12	15	1.77	1715.91
	344	15	528	27	497	59	2	3C273	71	-1	0.95	20	1.25	1716.00
	344	16	393	12	382	20	3	3C283	55	-14	0.82	33	1.63	1715.94

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DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	344	18	377	11	357	11	3	3C298	51	11	0.78	38	1.73	1715.93
811211	345	1	495	29	453	26	2	3C446	77	3	0.98	-17	-1.41	1716.10
	345	2	376	15	502	89	2	3C459	92	4	1.05	-14	-0.86	1716.04
	345	4	326	13	326	27	4	3C48	132	6	1.22	-8	0.66	1715.96
	345	12	370	35	305	11	2	3C216	128	4	1.21	10	1.79	1715.95
	345	13	299	53	274	33	2	3C237	108	-3	1.13	15	1.88	1715.91
	345	14	513	13	500	29	3	3C273	72	-1	0.95	18	1.15	1716.03
	345	15	550	35	602	13	3	3C283	56	-13	0.83	32	1.84	1716.02
811212	346	2	317	11	307	28	2	3C459	91	4	1.05	-15	-0.87	1716.04
	346	4	327	8	321	8	3	3C48	131	6	1.22	-8	0.60	1716.00
	346	12	560	25	599	26	3	3C222	115	-5	1.16	13	1.45	1716.06
	346	15	535	34	478	21	2	3C273	73	-1	0.96	18	1.14	1716.07
	346	15	440	13	447	36	3	3C283	57	-13	0.84	32	1.68	1716.03
	346	16	614	77	627	86	2	3C295	86	13	1.02	11	0.83	1716.10
	346	18	469	57	445	24	4	3C298	53	10	0.80	37	1.94	1716.03
811213	347	1	404	23	407	40	2	3C446	75	3	0.97	-17	-1.50	1716.14
	347	2	398	16	371	8	3	3C459	90	4	1.04	-16	-1.04	1716.13
	347	4	341	8	376	9	2	3C48	130	6	1.21	-8	0.53	1716.05
	347	14	334	33	337	113	3	3C273	74	-1	0.96	19	1.17	1716.03
	347	15	377	14	397	72	2	3C283	58	-13	0.85	30	1.50	1716.04
	347	18	358	51	319	10	3	3C298	54	9	0.81	35	1.62	1716.04
811214	348	1	426	34	421	25	2	3C446	74	3	0.96	-16	-1.41	1716.19
	348	2	318	12	307	32	3	3C459	89	4	1.04	-16	-1.00	1716.12
	348	4	352	17	367	17	2	3C48	129	6	1.21	-9	0.40	1716.09
	348	18	537	11	550	15	4	3C298	55	9	0.82	34	1.91	1716.13
811215	349	2	326	17	315	11	3	3C459	88	3	1.03	-16	-1.09	1716.16
	349	4	295	7	394	10	2	3C48	128	5	1.21	-9	0.59	1716.08
	349	14	454	50	466	15	3	3C273	76	-1	0.97	18	1.20	1716.16
	349	16	400	69	377	129	2	3C283	60	-12	0.87	29	1.56	1716.13
	349	17	448	14	408	12	4	3C298	56	8	0.83	34	1.83	1716.14
811216	350	1	234	16	202	19	2	3C459	87	3	1.03	-15	-0.98	1716.11
	350	4	323	8	361	30	2	3C48	127	5	1.20	-8	0.53	1716.15
	350	13	398	33	410	11	2	3C237	113	-4	1.15	14	1.76	1716.15
	350	14	430	93	413	149	2	3C273	77	-2	0.98	18	1.20	1716.19
	350	15	497	122	493	209	2	3C283	61	-12	0.87	28	1.64	1716.20
	350	17	335	23	279	23	2	3C298	57	8	0.84	33	1.57	1716.13
811217	351	0	308	32	235	39	2	3C446	71	3	0.95	-17	-1.65	1716.25
	351	2	384	10	341	14	4	3C459	86	3	1.02	-15	-1.06	1716.27
	351	4	270	56	223	52	2	3C48	126	5	1.20	-9	0.68	1716.13
	351	15	342	37	300	46	3	3C283	62	-12	0.88	27	1.38	1716.18
	351	17	302	7	297	6	4	3C298	58	7	0.85	32	1.41	1716.15
	351	23	288	15	281	12	2	3C409	60	24	0.87	-17	-2.22	1716.28
811218	352	2	358	29	366	28	2	3C459	85	3	1.02	-16	-1.18	1716.30
	352	4	323	19	353	6	2	3C48	126	5	1.20	-10	0.38	1716.22
	352	14	426	19	427	19	2	3C273	79	-2	0.99	18	1.24	1716.26
	352	15	302	11	300	23	2	3C283	63	-11	0.89	26	1.26	1716.19
	352	17	374	*	374	*	3	3C298	59	7	0.86	30	1.54	1716.23
811219	353	0	242	35	229	48	2	3C446	69	3	0.93	-20	-2.08	1716.27
	353	2	276	17	233	20	2	3C459	84	3	1.01	-16	-1.14	1716.28
	353	4	298	10	366	36	2	3C48	125	5	1.20	-9	0.50	1716.24
	353	15	370	23	291	19	3	3C283	64	-11	0.90	25	1.34	1716.27
	353	17	358	24	339	16	4	3C298	60	6	0.87	29	1.47	1716.26
811220	354	2	332	12	384	85	2	3C459	83	3	1.01	-16	-1.21	1716.36
	354	14	347	40	267	27	2	3C273	81	-2	1.00	18	1.30	1716.29
	354	15	383	19	425	70	2	3C283	65	-11	0.91	23	1.28	1716.31
	354	17	347	10	358	27	4	3C298	61	6	0.87	28	1.38	1716.29
811221	355	0	354	50	329	24	2	3C446	67	3	0.92	-22	-2.15	1716.44
	355	2	275	19	292	8	3	3C459	82	3	1.00	-16	-1.24	1716.35
	355	4	338	66	373	45	2	3C48	123	5	1.19	-10	0.25	1716.35
	355	14	312	37	302	35	2	3C273	82	-2	1.00	18	1.31	1716.30
	355	15	359	11	380	18	3	3C283	66	-11	0.91	22	1.18	1716.34
	355	17	309	12	316	34	4	3C298	62	5	0.88	28	1.40	1716.31
811222	356	2	342	39	428	17	2	3C459	81	3	1.00	-16	-1.27	1716.44

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DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	356	14	351	11	356	11	2	3C273	83	-2	1.01	18	1.37	1716.36
	356	15	400	15	396	12	3	3C283	67	-10	0.92	22	1.26	1716.39
	356	17	314	8	317	24	2	3C298	63	5	0.89	28	1.42	1716.35
B11223	357	3	319	7	353	19	3	3C48	121	5	1.18	-11	0.23	1716.41
	357	18	388	14	357	12	2	3C298	64	5	0.90	26	1.42	1716.42
B11224	358	0	384	72	378	33	2	3C446	64	3	0.90	-25	-2.42	1716.57
	358	1	351	39	437	51	2	3C459	79	2	0.99	-17	-1.36	1716.52
	358	3	386	27	433	11	3	3C48	120	5	1.18	-11	0.03	1716.49
	358	14	266	21	312	35	2	3C273	86	-2	1.02	17	1.41	1716.37
	358	15	339	9	366	32	3	3C283	69	-10	0.93	21	1.18	1716.44
	358	17	271	6	302	20	2	3C298	65	4	0.91	24	1.16	1716.39
B11225	359	1	279	29	293	18	2	3C459	78	2	0.98	-16	-1.37	1716.50
	359	3	229	9	231	10	2	3C48	119	5	1.18	-11	0.59	1716.38
	359	14	508	17	493	17	2	3C273	87	-3	1.03	18	1.41	1716.53
	359	15	404	11	413	49	3	3C283	70	-9	0.94	19	1.15	1716.51
	359	16	243	*	270	*	2	3C295	93	11	1.06	10	1.21	1716.40
	359	17	337	29	353	27	3	3C298	65	4	0.91	24	1.30	1716.47
	359	23	305	*	371	*	2	3C409	55	29	0.82	-17	-2.46	1716.60
B11226	360	0	458	31	509	141	2	3C446	62	3	0.88	-27	-2.55	1716.68
	360	1	401	8	409	28	3	3C459	77	2	0.98	-16	-1.38	1716.62
	360	14	339	36	380	126	2	3C283	71	-9	0.95	19	1.10	1716.51
	360	17	341	8	315	8	3	3C298	66	3	0.91	24	1.29	1716.51
B11227	361	1	384	12	390	12	3	3C459	76	2	0.97	-17	-1.44	1716.65
	361	3	302	31	355	64	2	3C48	117	4	1.17	-10	0.20	1716.54
	361	14	451	51	440	75	2	3C273	89	-3	1.04	18	1.48	1716.59
	361	14	310	10	327	20	3	3C283	71	-9	0.95	19	1.04	1716.54
	361	17	382	12	377	12	3	3C298	67	3	0.92	22	1.27	1716.57
B11228	362	2	331	35	342	104	2	3C459	75	2	0.97	-15	-1.38	1716.66
	362	13	349	46	314	81	2	3C273	90	-3	1.04	17	1.49	1716.58
	362	17	413	9	377	8	3	3C298	68	3	0.93	21	1.25	1716.62
B11229	363	0	403	15	435	43	2	3C446	59	4	0.86	-30	-2.95	1716.78
	363	3	420	10	380	7	3	3C48	115	4	1.16	-11	-0.19	1716.69
	363	12	506	50	475	44	2	3C237	127	-5	1.20	12	1.63	1716.67
	363	13	562	29	531	36	2	3C273	91	-3	1.05	17	1.39	1716.69
	363	14	605	28	582	28	2	3C283	73	-9	0.96	17	1.09	1716.71
	363	17	526	11	534	9	4	3C298	69	2	0.93	21	1.31	1716.69
B11230	364	3	554	10	580	17	3	3C48	115	4	1.16	-12	-0.40	1716.78
	364	12	657	18	603	44	2	3C237	128	-5	1.21	11	1.41	1716.74
	364	13	426	13	432	14	2	3C273	92	-3	1.05	18	1.54	1716.69
	364	17	441	10	472	62	3	3C298	70	2	0.94	20	1.24	1716.71
B11231	365	3	413	20	474	33	3	3C48	114	4	1.16	-11	-0.19	1716.76
	365	12	390	15	390	44	2	3C237	129	-5	1.21	12	1.90	1716.69
	365	14	598	19	579	34	2	3C283	75	-9	0.97	17	1.13	1716.78
	365	16	434	20	443	69	2	3C298	71	2	0.95	19	1.17	1716.74

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

SOLAR WIND
Interplanetary Scintillations

JANUARY 1982

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
820101	1	13	594	22	613	42	2	3C273	94	-3	1.06	17	1.41	1716.81
	1	14	530	57	510	51	2	3C283	76	-9	0.97	17	1.19	1716.80
	1	17	477	59	410	17	3	3C298	72	1	0.95	18	1.10	1716.80
	1	19	444	85	365	66	2	3C368	36	47	0.59	25	0.13	1716.83
	1	22	221	73	223	57	2	3C409	51	32	0.78	-17	-3.19	1716.80
820102	2	3	362	9	500	56	3	3C48	112	4	1.15	-12	-0.22	1716.81
	2	12	418	70	406	179	2	3C237	131	-5	1.22	11	1.76	1716.78
	2	14	319	36	345	11	2	3C283	77	-9	0.98	17	1.14	1716.76
	2	16	366	32	399	23	3	3C298	73	1	0.96	17	1.05	1716.79
820103	3	3	510	65	459	67	2	3C48	111	4	1.14	-13	-0.47	1716.91
	3	15	261	20	253	25	2	3C295	97	9	1.08	11	1.36	1716.74
	3	17	387	18	346	22	3	3C298	74	1	0.96	17	1.10	1716.84
	3	23	480	73	489	74	2	3C446	53	4	0.80	-36	-3.57	1717.05
820104	4	1	422	15	353	19	2	3C459	68	2	0.93	-20	-1.91	1716.97
	4	3	544	55	532	37	2	3C48	110	4	1.14	-12	-0.47	1716.96
	4	14	322	10	332	11	2	3C283	79	-9	0.99	17	1.19	1716.83
	4	15	359	116	289	106	2	3C295	98	9	1.08	10	1.18	1716.85
	4	16	376	53	410	66	2	3C298	75	1	0.97	17	1.11	1716.87
	4	23	320	80	648	67	2	3C446	52	5	0.79	-37	-4.07	1717.03
820105	5	3	456	33	452	12	2	3C48	109	4	1.13	-13	-0.44	1716.97
	5	13	320	19	386	77	2	3C273	98	-4	1.08	16	1.69	1716.85
	5	14	359	32	352	67	2	3C283	80	-9	0.99	18	1.26	1716.89
820106	6	0	400	21	416	51	2	3C459	66	3	0.91	-23	-2.15	1717.04
	6	2	470	*	489	*	2	3C48	108	3	1.13	-13	-0.47	1717.01
	6	13	419	21	386	37	2	3C273	99	-4	1.09	17	1.62	1716.94
	6	14	437	25	440	27	3	3C283	81	-9	1.00	17	1.27	1716.96
	6	16	325	18	369	11	2	3C298	77	0	0.98	18	1.17	1716.91
	6	23	300	30	217	18	2	3C446	50	5	0.77	-38	-4.38	1717.11
820107	7	3	478	36	475	65	2	3C48	107	3	1.12	-12	-0.48	1717.05
	7	16	343	11	394	11	3	3C298	78	0	0.98	17	1.17	1716.96
820109	9	0	217	18	179	12	2	3C459	63	3	0.89	-24	-2.82	1717.04
	9	14	305	19	383	16	2	3C283	84	-10	1.01	17	1.32	1717.00
820110	10	13	431	24	326	93	2	3C283	85	-10	1.02	16	1.29	1717.10
	10	18	292	*	301	*	2	3C368	39	38	0.63	32	-0.01	1717.08
	10	23	207	39	248	8	2	3C446	46	5	0.72	-43	-5.81	1717.20
820111	11	0	292	18	278	25	2	3C459	61	4	0.87	-27	-2.89	1717.19
	11	2	322	15	318	12	3	3C48	103	3	1.11	-13	-0.40	1717.13
820112	12	0	217	44	268	102	2	3C459	60	4	0.87	-29	-3.35	1717.16
	12	2	338	19	292	9	2	3C48	102	3	1.10	-13	-0.43	1717.17
	12	13	283	21	249	26	2	3C273	105	-4	1.12	16	1.91	1717.06
	12	13	357	43	326	39	2	3C283	87	-10	1.03	17	1.38	1717.13
	12	16	343	8	337	18	3	3C298	83	0	1.01	17	1.32	1717.13
820113	13	0	225	28	262	20	2	3C459	59	4	0.86	-29	-3.42	1717.21
	13	3	347	13	272	11	2	3C48	101	3	1.10	-13	-0.51	1717.22
	13	12	375	25	365	51	3	3C273	106	-4	1.12	16	1.78	1717.17
	13	14	248	43	262	93	2	3C283	88	-10	1.03	17	1.51	1717.08
	13	16	341	8	320	8	3	3C298	84	0	1.01	17	1.29	1717.17
	13	23	278	24	380	64	2	3C446	43	6	0.68	-46	-5.63	1717.39
820114	14	0	289	12	296	16	3	3C459	58	4	0.85	-31	-3.33	1717.31
	14	3	298	31	288	16	2	3C48	100	3	1.09	-13	-0.41	1717.22
	14	15	266	22	249	28	2	3C298	85	0	1.02	17	1.41	1717.15
	14	21	243	*	229	*	2	3C409	45	39	0.71	-11	-3.11	1717.30
820115	15	2	301	8	303	8	3	3C48	99	3	1.09	-12	-0.42	1717.26
	15	12	374	8	380	8	3	3C273	108	-4	1.13	14	1.69	1717.24
	15	13	332	9	339	13	2	3C283	90	-10	1.04	17	1.52	1717.23
	15	14	369	27	347	45	2	3C295	103	8	1.11	9	1.17	1717.26
	15	16	313	6	327	6	3	3C298	86	0	1.02	17	1.40	1717.22
	15	18	271	31	265	10	2	3C368	41	33	0.66	33	0.10	1717.24
	15	23	312	15	310	29	2	3C446	41	6	0.66	-48	-5.74	1717.49
820116	16	0	290	13	263	11	2	3C459	56	5	0.83	-32	-3.54	1717.40
	16	2	324	13	329	17	3	3C48	99	3	1.09	-14	-0.59	1717.32
	16	12	342	53	360	44	2	3C273	109	-4	1.13	15	1.83	1717.25

SOLAR WIND

Interplanetary Scintillations

JANUARY 1982

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	16	13	330	18	317	16	2	3C283	91	-10	1.05	16	1.48	1717.26
	16	15	339	8	331	8	3	3C298	86	-1	1.02	17	1.41	1717.27
	16	22	361	15	305	12	2	3C446	40	6	0.64	-89	-8.64	1717.66
820117	17	2	268	9	287	14	2	3C48	98	3	1.08	-14	-0.50	1717.31
	17	12	373	19	412	36	2	3C273	110	-5	1.14	15	1.75	1717.31
	17	13	381	11	414	61	2	3C283	92	-10	1.05	17	1.48	1717.33
	17	15	317	9	323	10	3	3C298	87	-1	1.03	17	1.40	1717.29
	17	22	274	33	227	42	2	3C446	39	7	0.63	-102	-10.28	1717.70
820118	18	0	343	19	304	15	2	3C459	54	5	0.81	-33	-3.61	1717.51
	18	2	265	19	266	13	2	3C48	97	2	1.08	-14	-0.58	1717.34
	18	12	338	21	345	22	2	3C273	111	-5	1.14	14	1.84	1717.32
	18	13	417	29	409	41	2	3C283	93	-10	1.06	16	1.45	1717.38
	18	15	322	12	331	19	3	3C298	88	-1	1.03	17	1.42	1717.33
820119	19	0	344	36	444	63	2	3C459	53	5	0.80	-35	-3.74	1717.55
	19	2	276	31	329	10	2	3C48	96	2	1.07	-15	-0.68	1717.39
	19	13	320	21	404	12	2	3C283	94	-10	1.06	16	1.53	1717.36
	19	15	365	15	391	14	3	3C298	89	-1	1.04	17	1.42	1717.40
	19	23	245	40	290	41	2	3C459	52	5	0.79	-35	-4.34	1717.53
820120	20	2	288	*	296	*	2	3C48	95	2	1.07	-15	-0.70	1717.44
	20	18	295	91	338	177	2	3C368	44	29	0.69	33	0.51	1717.43
	20	22	500	28	370	21	2	3C446	36	7	0.59	-53	-5.62	1717.75
	20	23	354	16	360	17	3	3C459	51	6	0.78	-36	-3.97	1717.64
820121	21	2	297	*	347	*	2	3C48	94	2	1.06	-13	-0.66	1717.48
	21	12	301	10	351	12	2	3C273	114	-5	1.16	14	2.00	1717.40
	21	13	442	36	471	15	2	3C283	96	-10	1.07	17	1.55	1717.50
	21	15	403	9	417	9	2	3C298	91	-1	1.05	17	1.44	1717.49
	21	18	353	71	365	30	2	3C368	44	28	0.69	32	0.79	1717.49
820122	22	2	378	12	389	15	3	3C48	93	2	1.06	-14	-0.83	1717.58
	22	5	446	83	577	117	2	3C147	137	2	1.24	-7	0.45	1717.56
	22	23	337	97	476	80	2	3C459	49	6	0.75	-39	-4.31	1717.71
820123	23	2	493	25	503	58	2	3C48	92	2	1.05	-14	-0.90	1717.66
	23	4	342	41	485	125	2	3C147	136	2	1.23	-6	0.77	1717.54
	23	13	334	47	407	74	2	3C283	98	-10	1.08	16	1.63	1717.51
	23	15	274	8	295	24	2	3C298	93	-1	1.06	17	1.62	1717.47
	23	23	458	54	288	14	2	3C459	48	6	0.74	-39	-4.06	1717.79
820124	24	2	432	66	424	43	3	3C48	91	2	1.05	-14	-0.90	1717.67
	24	3	356	71	406	27	2	3C144-	140	-5	1.24	-8	0.61	1717.59
	24	5	506	11	543	75	4	3C144	140	-5	1.24	-8	0.26	1717.66
	24	13	408	55	408	67	2	3C283	99	-10	1.09	16	1.58	1717.59
	24	15	434	12	445	109	3	3C298	94	-1	1.06	16	1.47	1717.61
	24	22	302	39	307	21	2	3C446	32	8	0.53	-57	-7.22	1717.87
	24	23	447	55	426	75	2	3C459	47	7	0.73	-40	-4.16	1717.83
820125	25	2	321	8	445	87	2	3C48	90	2	1.04	-14	-0.87	1717.65
	25	5	470	81	553	79	2	3C144	139	-5	1.24	-8	0.28	1717.68
	25	13	391	41	562	23	2	3C283	100	-10	1.09	15	1.53	1717.62
	25	15	479	18	440	95	2	3C298	95	-1	1.07	16	1.42	1717.66
	25	22	443	23	460	160	2	3C446	31	8	0.52	-58	-6.47	1717.95
820126	26	2	284	21	323	67	2	3C48	89	2	1.04	-15	-0.95	1717.66
	26	12	433	62	361	79	2	3C283	101	-10	1.10	15	1.54	1717.67
	26	15	326	40	302	9	2	3C298	96	-1	1.07	17	1.64	1717.62
	26	17	430	80	455	39	2	3C368	48	24	0.74	32	1.28	1717.69
	26	23	306	37	262	12	2	3C459	45	7	0.71	-42	-5.02	1717.86
820127	27	1	306	8	301	8	4	3C48	88	2	1.03	-14	-0.93	1717.72
	27	5	413	101	416	12	2	3C144	137	-5	1.24	-10	0.27	1717.74
	27	12	385	22	373	12	2	3C283	102	-10	1.10	15	1.61	1717.69
	27	13	432	99	461	114	2	3C295	109	7	1.13	8	1.15	1717.73
	27	15	454	7	472	8	3	3C298	97	-1	1.08	16	1.51	1717.72
	27	23	383	31	325	11	2	3C459	44	7	0.69	-43	-4.78	1717.94
820128	28	1	393	7	382	7	4	3C48	87	2	1.03	-15	-1.02	1717.81
	28	3	293	15	282	14	2	3C144-	136	-5	1.23	-10	0.70	1717.69
	28	4	428	66	471	47	2	3C147	132	1	1.22	-7	0.43	1717.77
	28	5	468	24	475	17	2	3C144	136	-5	1.23	-9	0.19	1717.80
	28	11	425	22	402	23	2	3C273	121	-5	1.18	13	1.76	1717.73

SOLAR WIND

Interplanetary Scintillations

JANUARY 1982

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	28	12	489	*	445	*	2	3C283	103	-10	1.11	15	1.50	1717.76
	28	13	466	32	474	12	2	3C295	109	7	1.13	8	1.08	1717.78
	28	15	425	20	472	15	2	3C298	98	-1	1.08	16	1.53	1717.75
	28	23	455	22	372	29	2	3C459	43	8	0.68	-44	-4.70	1718.00
820129	29	1	477	10	501	12	3	3C48	86	2	1.02	-15	-1.10	1717.88
	29	4	434	12	382	19	2	3C147	131	1	1.22	-7	0.33	1717.81
	29	5	375	12	376	15	3	3C144	135	-5	1.23	-9	0.42	1717.79
	29	11	484	*	511	*	2	3C273	122	-5	1.19	13	1.69	1717.79
	29	12	337	*	416	*	2	3C283	104	-10	1.11	15	1.68	1717.73
820130	30	2	465	18	480	58	2	3C48	85	2	1.02	-15	-1.12	1717.91
	30	3	445	12	440	12	3	3C144-	134	-5	1.23	-9	0.21	1717.86
	30	4	455	10	447	62	2	3C147	131	1	1.22	-8	0.23	1717.86
	30	5	436	8	449	11	3	3C144	134	-5	1.23	-10	0.20	1717.86
	30	6	489	20	528	20	3	3C161	137	-12	1.24	-7	0.36	1717.87
	30	8	411	13	367	11	2	3C144+	134	-5	1.23	-10	0.25	1717.85
	30	11	443	10	445	12	3	3C273	123	-5	1.19	13	1.71	1717.81
	30	12	421	16	426	15	3	3C283	105	-10	1.12	15	1.64	1717.81
	30	15	420	32	374	59	2	3C298	100	-2	1.09	16	1.56	1717.82
820131	31	1	483	65	503	64	2	3C48	84	2	1.01	-15	-1.12	1717.95
	31	2	321	16	287	28	2	3C144-	133	-5	1.22	-10	0.49	1717.82
	31	4	329	22	318	45	2	3C147	130	1	1.21	-8	0.56	1717.83
	31	5	325	18	459	21	2	3C144	133	-5	1.22	-10	0.49	1717.83
	31	6	349	28	358	14	2	3C161	137	-12	1.24	-8	0.65	1717.84
	31	12	440	16	518	22	2	3C283	106	-10	1.12	15	1.61	1717.86
	31	15	525	33	632	22	2	3C298	101	-2	1.10	15	1.46	1717.89

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

COSMIC RAY INDICES

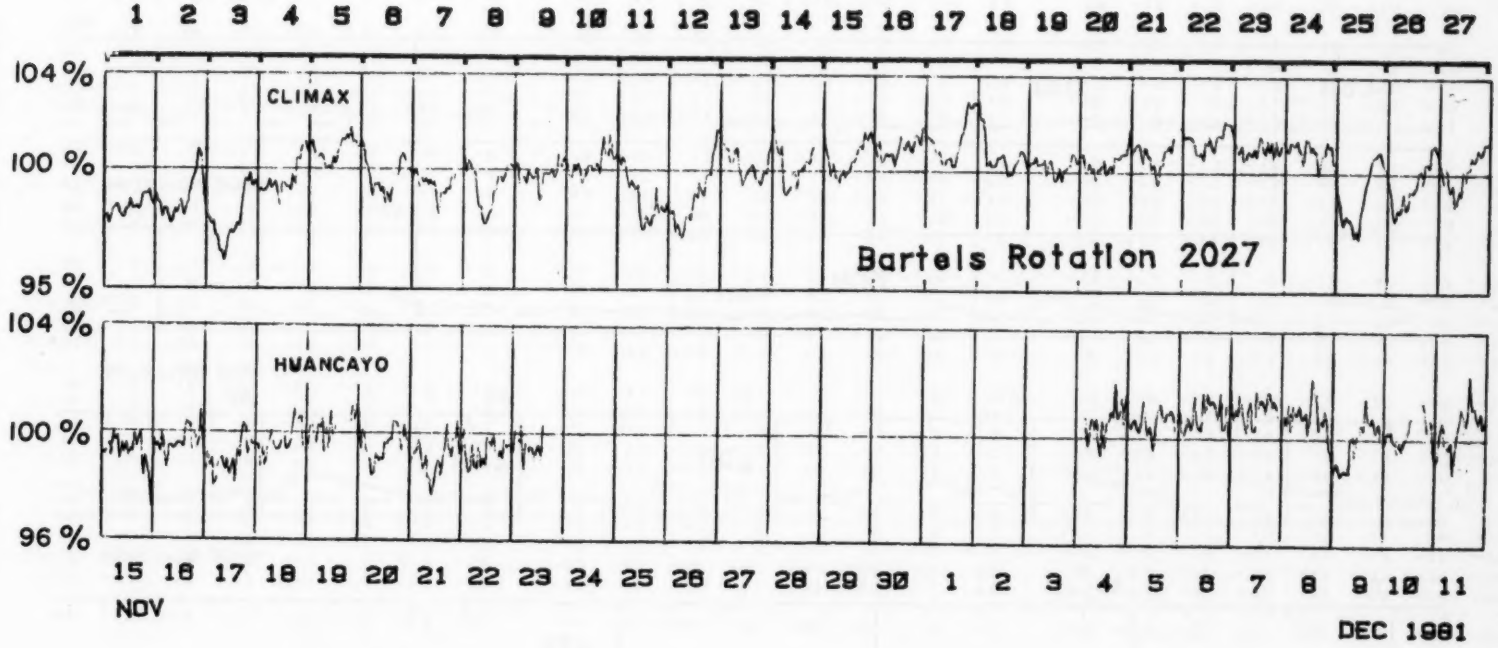
(Neutron Monitors)

DECEMBER 1981

Dec 1981	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	3649.5	---
2	3627.4	---
3	3611.7	---
4	3617.9	1723.9
5	3629.0	1723.7
6	3651.9	1726.8
7	3638.1	1732.1
8	3635.2	1726.6
9	3570.7	1710.1
10	3586.1	1716.6
11	3607.3	1719.8
12	3613.5	1713.5
13	3623.5	1721.2
14	3626.5	1718.5
15	3659.5	1725.7
16	3695.4	1734.3
17	3703.6	1733.8
18	3714.8	1737.8
19	3728.8	1739.8
20	3757.5	1744.0
21	3772.0	1752.9
22	3793.2	1753.4
23	3791.8	1750.0
24	3782.7	1749.5
25	3774.1	1746.6
26	3766.0	1747.6
27	3762.9	1746.5
28	3757.6	1747.8
29	3698.2	1730.7(38)
30	3665.7	1729.0
31	3620.4	1710.3
MEAN	3681.5	1732.8

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

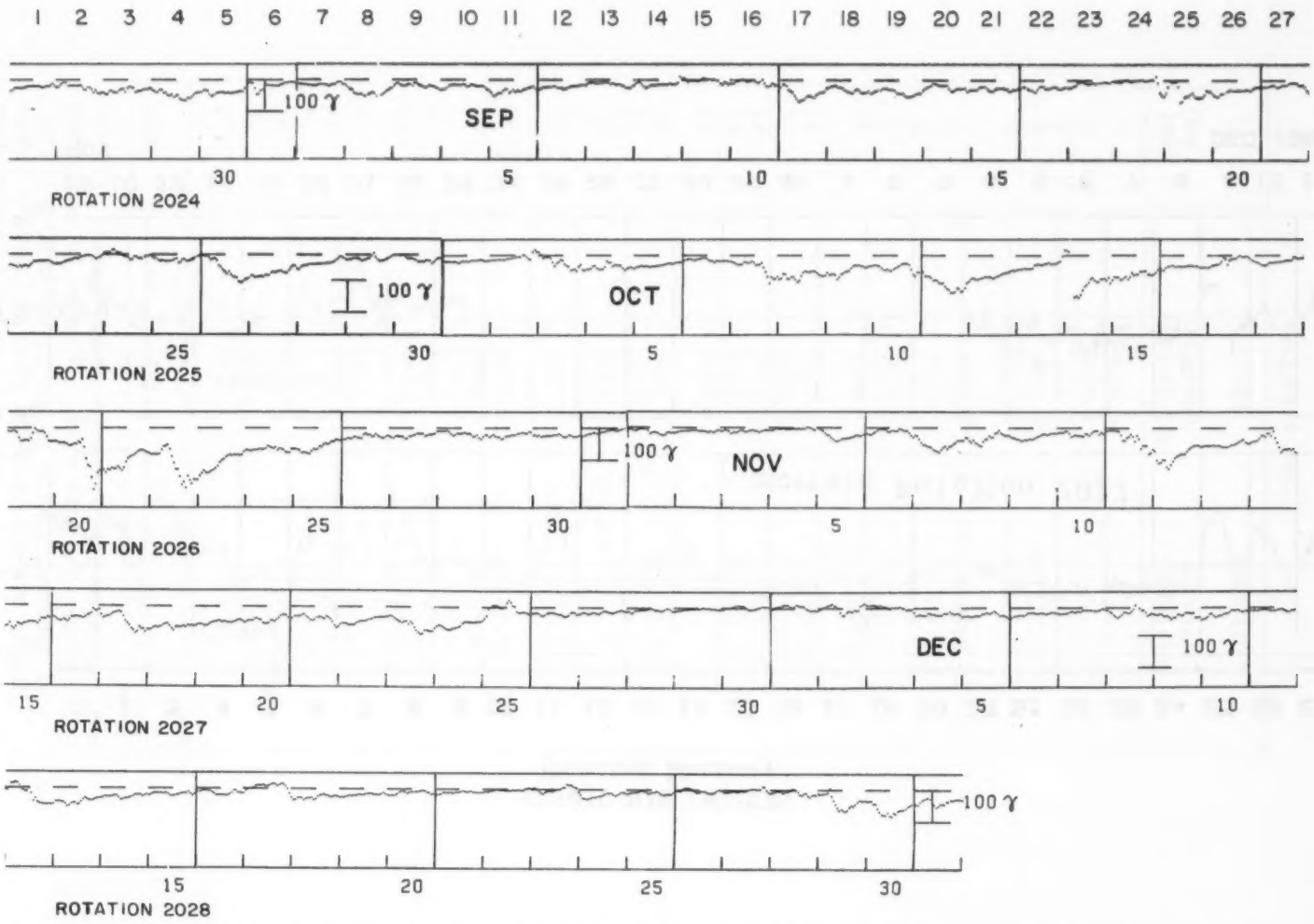
COSMIC RAY INDICES
(Neutron Monitor)



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

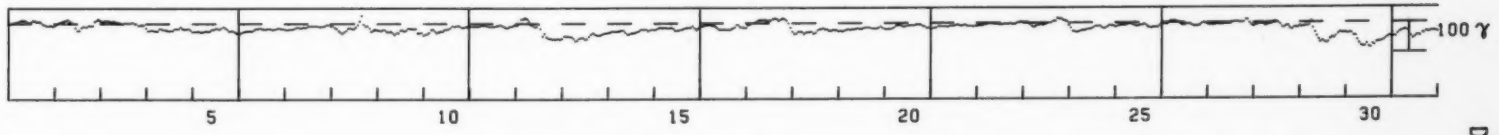
NASA/GODDARD SPACE FLIGHT CENTER

DECEMBER 1981

(Time-UT)

(Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-1	0	2	4	5	8	11	11	10	5	1	5	11	9	6	7	4	-2	-5	-8	-8	-7	-9	-8
2	-4	1	3	6	9	11	13	9	4	1	-13	-23	-23	-13	-10	-10	-12	-7	-8	-7	7	11	14	10
3	7	9	10	10	7	6	9	5	4	3	0	-3	2	1	1	1	4	0	-1	-6	-5	-6	-5	-14
4	-24	-22	-21	-23	-24	-24	-16	-17	-20	-20	-23	-24	-23	-22	-17	-17	-16	-12	-17	-19	-18	-17	-21	-27
5	-27	-26	-25	-27	-28	-26	-24	-26	-24	-19	-19	-15	-16	-18	-14	-11	-14	-19	-25	-24	-24	-28	-32	-31
6	-31	-28	-26	-25	-24	-24	-25	-21	-16	-16	-15	-16	-19	-19	-17	-16	-18	-20	-18	-16	-14	-16	-17	-18
7	-20	-20	-18	-18	-16	-13	-12	-14	-14	-12	-13	-10	-8	-9	-9	-9	-9	-11	-11	-10	-8	-4	-5	-8
8	-9	-13	-17	-24	-29	-33	-28	-23	-15	-14	-17	-17	-12	-5	8	26	-2	-9	-8	-15	-26	-23	-19	-21
9	-23	-24	-21	-21	-27	-28	-26	-31	-37	-32	-31	-23	-21	-25	-23	-16	-16	-17	-18	-17	-32	-32	-30	-38
10	-37	-35	-30	-21	-19	-26	-31	-28	-25	-25	-21	-19	-18	-14	-9	-10	-9	-7	-10	-13	-13	-11	-11	-10
11	-9	-10	-9	-11	-9	-7	-6	-6	-8	-10	-11	-11	-10	-8	-7	-5	-8	-11	-13	-14	-10	-10	-7	-5
12	-6	0	13	14	18	15	8	-4	-8	-12	-11	-3	-17	-42	-34	-45	-49	-50	-52	-52	-52	-50	-53	-50
13	-42	-42	-42	-44	-45	-50	-59	-56	-49	-47	-47	-53	-51	-43	-37	-32	-36	-38	-39	-38	-36	-33	-32	-31
14	-30	-26	-27	-27	-26	-25	-23	-23	-30	-37	-36	-33	-32	-31	-28	-26	-21	-20	-20	-20	-25	-22	-20	-22
15	-20	-17	-14	-14	-15	-14	-16	-16	-14	-18	-24	-24	-23	-21	-19	-16	-15	-14	-14	-10	-16	-22	-17	-12
16	-10	-9	-7	-6	-5	-8	-8	-12	-16	-21	-20	-21	-21	-21	-22	-20	-17	-13	-6	-6	-13	-13	-15	-15
17	-7	-3	0	0	3	8	11	10	11	12	8	8	11	13	15	13	9	12	15	13	9	0	-15	-26
18	-36	-35	-29	-28	-30	-36	-31	-30	-29	-28	-35	-32	-24	-20	-19	-17	-21	-21	-25	-26	-23	-22	-24	-27
19	-25	-28	-24	-23	-20	-23	-20	-21	-19	-17	-19	-19	-16	-15	-14	-14	-17	-18	-18	-18	-15	-12	-16	-19
20	-21	-19	-20	-18	-14	-10	-7	-7	-10	-13	-11	-9	-9	-8	-9	-7	-5	-5	-7	-11	-12	-16	-15	-16
21	-18	-16	-14	-11	-11	-12	-12	-11	-13	-11	-10	-11	-8	-6	-8	-10	-8	-6	-11	-11	-11	-12	-10	-10
22	-8	-8	-8	-5	-4	-2	-1	-2	-3	-3	-4	-4	-5	-4	-2	-4	-2	-2	-4	-4	1	2	4	2
23	3	4	0	-6	-12	-14	-10	-7	-5	-6	-7	-3	0	0	2	6	7	15	13	14	10	7	5	-6
24	-16	-27	-29	-32	-29	-27	-24	-25	-23	-21	-21	-18	-14	-12	-12	-11	-15	-19	-17	-13	-9	-10	-11	-14
25	-12	-10	-9	-8	-8	-6	-2	-4	-6	-10	-12	-11	-8	-8	-5	-9	-13	-16	-16	-14	-14	-15	-10	-7
26	-3	-5	-4	2	6	5	6	3	1	-4	-8	-8	-4	-4	-5	-9	-12	-12	-12	-9	-3	0	-2	-5
27	-8	-7	-8	-6	-4	-4	-6	-5	-3	-4	-5	-3	1	2	3	2	1	1	2	10	10	-1	-8	-12
28	-9	-7	-3	-4	-5	-10	-8	-5	-5	-2	3	2	-1	-7	-15	-17	-12	-11	-18	-23	-17	-15	-17	-12
29	-14	-13	-12	-12	-9	5	-19	-33	-45	-57	-64	-61	-65	-68	-64	-55	-49	-51	-46	-38	-33	-35	-35	-34
30	-37	-35	-35	-43	-44	-59	-69	-77	-80	-80	-71	-81	-84	-72	-75	-66	-63	-63	-62	-59	-53	-49	-45	-44
31	-46	-47	-38	-33	-29	-27	-24	-28	-41	-46	-54	-50	-44	-44	-45	-37	-37	-31	-33	-31	-29	-30	-30	-32



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